

NIA

Digital & AI

Insights

#1

NIA AX Strategy



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Overview

Public institutions worldwide face a widening gap between rising expectations and limited capacity. Citizens demand faster and more personalized services, policy environments grow more complex by the year, and workforces remain constrained by budget pressures and rapid technological change. Generative AI and large-scale AI models have matured to the point where they are no longer specialized tools but general-purpose technologies capable of reshaping how entire organizations plan, decide, and operate. Yet the public sector has been slow to act: an analysis of approximately 1,500 AI-related cases found that fully implemented AI transformations in public institutions account for only around 3 percent. This gap defines the challenge that Artificial Intelligence Transformation (AX) is designed to address. Unlike earlier waves of organizational change, Informatization Transformation digitized manual processes while Digital Transformation leveraged data for decision-making. AX embeds AI throughout the entire operating model of an institution, transforming accumulated data, experience, and expertise into shared organizational intelligence. This enables public institutions to simultaneously achieve goals that conventional approaches could not address at once: operational speed and service quality, resource efficiency and public value, and productivity alongside professional depth.

The National Information Society Agency (NIA) is the Republic of Korea's leading public institution for digital government, data governance, and AI policy. As the Korean government pursues its national vision of becoming one of the world's top three AI powers, formalized through the launch of the National AI Strategy Committee in September 2025, NIA occupies a dual role: driving AX within its own organization and establishing a replicable model that other public institutions can learn from and build upon. NIA's internal assessment confirms both the opportunity and the urgency. AI applicability has been validated across virtually all of NIA's core functions, and early pilot initiatives have already delivered measurable results: proposal review time cut by 91%, helpdesk inquiry volumes reduced by 33%, and regulation revision time reduced by 67%. At the same time, AI utilization remains fragmented across departments, foundational data and infrastructure conditions are still maturing, and the number of specialists capable of leading institution-wide transformation remains limited. Realizing AX at scale requires a comprehensive strategy, not a collection of pilots.

NIA's AX strategy addresses this through three interconnected strategic areas, comprising 12 core initiatives implemented through a phased roadmap spanning 2025 to 2028 and beyond. The strategy is grounded in five core principles that reflect the particular demands of public-sector transformation: Citizen-Centered Value, Employee Participation, Private-Sector Collaboration, Security and Ethics, and Agile Implementation. By 2027, NIA expects to reduce time spent on repetitive administrative tasks by 70%, improve work quality consistency by 50%, raise average employee AI competency by more than 20%, and improve organizational decision-making speed and accuracy by 1.8 times. This document presents that strategy in full, intended to support dialogue with international partners on collaborative opportunities and the future of intelligent government.

#1

NIA AX Strategy

Background and Rationale

What Is AX?

Artificial Intelligence Transformation (AX) refers to an innovative approach in which organizations move beyond simply utilizing AI technologies and instead embed AI throughout their organizational structures and business processes to achieve goals that conventional improvement methods could not simultaneously accomplish. AX is not limited to introducing AI into a few functions or services; rather, it represents a strategic transformation in which the entire operating model of an organization is redesigned around AI-driven intelligence.

Evolution Toward AX

The evolution toward AX has progressed through several stages, including Informatization Transformation (IX) and Digital Transformation (DX). IX focused on converting manual work into information systems and digitizing repetitive administrative processes. Through IX, organizations introduced computerized workflows, online services, and standardized administrative systems, enabling faster and more evidence-based operations.

DX expanded beyond simple computerization by leveraging data to improve decision-making and create new value. During this stage, organizations began using data analytics to enhance operational efficiency, expand digital services, and support data-driven administration. DX therefore represented a shift toward more connected, agile, and data-centric organizational structures.

More recently, rapid advances in generative AI and large-scale AI models have accelerated the emergence of AX. AX builds upon the digital foundations established through DX and enables organizations to secure institutional intelligence by transforming accumulated data, experience, and expertise into organizational assets through AI learning. In particular, AI-driven automation, optimization, and specialization are fundamentally reshaping organizational operations and redefining the role of human workers.

Value Proposition of AX

AX enables organizations to achieve multiple objectives that were previously difficult to accomplish simultaneously. First, AI-driven automation improves both operational speed and service quality at the same time. Second, AI-based resource optimization allows organizations to achieve both economic efficiency and public value despite limited budgets and workforce constraints. Third, AX enables productivity and professionalism to coexist by automating repetitive tasks while strengthening advanced analytical and decision-making capabilities. Fourth, by reducing repetitive workloads and enabling employees to focus on more creative and high-value tasks, AX contributes to a better balance between work and personal life.



Declining operational efficiency

Declining operational efficiency has emerged as one of the most critical challenges facing public institutions today. Public organizations are expected to provide high-quality services that meet citizens' expectations despite limited budgets and workforce constraints, while also responding rapidly to growing policy demands related to safety, ESG, DX, and data-driven administration. Conventional organizational structures and administrative processes alone are no longer sufficient to address increasingly complex policy environments and rapidly growing administrative demands.

In this context, AX is gaining attention as a key solution for simultaneously improving operational efficiency and driving institutional innovation in the public sector. AI-based risk management systems can strengthen organizational accountability and stability by proactively detecting and managing repetitive issues such as internal control failures, abnormal transactions, and regulatory violations. In addition, administrative automation can significantly reduce repetitive tasks such as document processing, meeting minute preparation, and data organization, allowing employees to focus on higher-value activities while improving productivity even under limited workforce conditions.

Public institutions also operate within highly complex regulatory and procedural environments, where work quality often depends heavily on the experience and expertise of individual employees. AX can address this challenge by enabling intelligent search and AI-assisted decision support systems that quickly identify and apply relevant regulations, guidelines, institutional procedures, and precedent cases. Furthermore, AI-driven resource optimization can enhance the efficiency of budget and workforce management, enabling institutions to strategically reallocate resources toward new policy initiatives and future-oriented tasks.

Institutional Expertise and Innovation Capacity

Another major challenge facing the public sector is the weakening of institutional expertise and innovation capacity. As digital technologies and policy environments evolve rapidly, public institutions must continuously acquire new knowledge and capabilities. In practice, however, excessive workloads and workforce limitations often leave insufficient time for learning and innovation. In addition, much of the expertise and operational know-how accumulated within organizations remains dependent on individuals rather than being systematically shared and institutionalized.

AX offers a new approach to overcoming these limitations. AI can learn from organizational data and professional knowledge, transforming the experience and expertise of skilled employees into institutional assets. As a result, new employees can rapidly develop capabilities comparable to those of experienced professionals. AX can also foster self-directed learning and collaboration-oriented organizational cultures that adapt quickly to changing technologies and policy environments. By reducing the time spent on repetitive activities such as data collection and analysis, AI enables employees to focus more on creative policymaking and strategic planning. Moreover, AI-driven sharing of institutional data and operational methods can further strengthen collaboration among public institutions.

Meeting Citizen Expectations

Policy outcomes that fail to meet citizens' expectations remain another important challenge for the public sector. Citizens increasingly expect faster, more accurate, and personalized public services, while traditional one-size-fits-all administrative systems struggle to accommodate increasingly diverse public needs. Reactive approaches to policy implementation are also becoming insufficient for proactively managing complex social issues and administrative risks.

Accordingly, the public sector must leverage AI to implement more citizen-centered policies and services. AI-based personalized services can analyze individual characteristics and circumstances to provide tailored public services and policy support. AI can also proactively analyze and predict public complaints and social risks, enabling preventive actions before problems emerge. In addition, policy simulation capabilities can support more scientific and optimized decision-making by evaluating policy issues and alternative scenarios in advance. Furthermore, the public sector can adopt Agent-to-Agent (A2A) working models to remove barriers between government agencies and between the public and private sectors.

Expected Institutional Outcomes

Public institutions are required to deliver a wide range of outcomes, yet they face structural limitations in responding effectively to growing policy and administrative demands due to limited budgets and workforce constraints. Public organizations are not merely administrative entities; they are responsible for simultaneously improving citizens' quality of life and strengthening national competitiveness. As a result, they must achieve a balanced combination of strategic, policy, operational, and financial performance.

At the strategic level, public institutions must move beyond their traditional role as administrative service providers and act as leading institutions that drive AI transformation within their respective sectors. This requires the development of new AI-based public services and operational models, as well as the organizational agility needed to respond quickly to technological and policy changes. At the policy level, AX enables organizations to proactively identify issues and provide customized services through AI-based analytics and predictive capabilities, improving citizen satisfaction and strengthening the effectiveness of public policies. Operationally, AX can reduce repetitive administrative tasks through automation, allowing employees to focus on more creative and specialized work, while AI supports professional decision-making by analyzing complex regulations and policy cases. Finally, at the financial level, AX enables organizations to identify hidden inefficiencies and waste factors through AI-driven analytics while optimizing the allocation of budgets, workforce, and organizational assets.

Ultimately, AX is not simply the adoption of new technologies; it is an innovation strategy that enables public institutions to achieve strategic, policy, operational, and financial outcomes simultaneously despite limited resources.

Environment and Case Analysis

Current State of AI Adoption

AI utilization has already become part of everyday life for individuals and private companies, while many public institutions remain in the review and evaluation stage due to technological limitations, budget constraints, and risk concerns. With the rapid advancement of generative AI and large-scale AI models, AI is no longer a specialized technology used only by experts; it has evolved into a general-purpose technology widely integrated into daily life and business operations. In particular, the private sector is actively accelerating AI-driven innovation, fundamentally transforming organizational operations and industrial structures.

At the individual level, AI adoption has already become commonplace. People increasingly use generative AI for document writing, translation, information retrieval, scheduling, learning, and content creation. AI is no longer viewed merely as a search tool, but rather as a digital collaboration partner that supports both professional and personal activities. Private companies are also aggressively adopting AI as a core business strategy, leveraging it to provide personalized customer services, support data-driven decision-making, optimize production processes, automate marketing activities, and predict operational risks. Recently, AI adoption has progressed beyond simple automation toward AI agent-based autonomous work systems, making AI capability a key source of corporate competitiveness.

In contrast, the level of AI adoption within public institutions remains relatively limited in many cases. Although most public organizations recognize the necessity of AI adoption, actual implementation often remains at the review and planning stage due to concerns related to technical limitations, budgetary burdens, security and privacy issues, and institutional uncertainty. Public institutions also face structural barriers including complex procurement procedures, restricted budget systems, fragmented data environments, and disconnected workflows that often limit organization-wide AI integration. As a result, many public-sector AI initiatives remain confined to pilot projects or limited use cases rather than achieving full organizational transformation centered on AI. An analysis of approximately 1,500 AI-related cases found that most public-sector AI utilization remains experimental in nature, while fully

implemented cases account for only approximately 3 percent.

Leading Country Initiatives

United States

The U.S. government views AI as a critical technology that simultaneously supports national security, economic competitiveness, and administrative innovation. The federal government has established AI governance frameworks and requires federal agencies to develop agency-specific AI strategies and implementation plans. Efforts are also underway to expand open public data initiatives and strengthen cloud-based AI infrastructure throughout the federal government. At the operational level, federal agencies are increasingly using AI for document preparation, citizen response services, data analysis, contract review, and cybersecurity operations, with the goal of improving productivity and reducing administrative workloads. Importantly, the policy direction is shifting toward viewing AI not simply as an automation tool, but as a collaborative work partner for public officials. Through agency-level experimentation and the sharing of best practices, the U.S. government is encouraging broader AX adoption across the federal administration.

United Kingdom

The UK government is actively leveraging AI as a core instrument for public-service innovation and administrative efficiency. Through the AI Opportunities Action Plan and broader digital government strategies, the UK has identified public-sector AI adoption as a national priority. The government is promoting cross-departmental data integration and AI-driven decision-making systems while expanding AI applications across areas such as public complaint management, policy analysis, welfare administration, and healthcare services. In particular, the UK government has developed official guidance for the use of generative AI by public officials, helping employees utilize AI safely and effectively in their daily work. These efforts are intended to reduce repetitive administrative tasks and allow public officials to focus more on strategic and creative responsibilities. At the same time, principles related to privacy protection, ethics, transparency, and explainability are being incorporated into responsible AI governance frameworks.

Republic of Korea

With the launch of national initiatives aimed at becoming one of the world's top three AI powers in September 2025, the Korean government has begun actively promoting AX across the

public sector as a core national strategy. The National AI Strategy Committee was established in September 2025 as the highest-level national control tower for AI policymaking, with eight major policy areas established — including Public AI and data policy — to strengthen policy execution and inter-ministerial collaboration. This governance framework provides the foundation for integrating previously fragmented AI policies and initiatives into a coordinated national strategy.

Policies to expand AI utilization across public institutions are also being actively promoted as of July 2025. A dedicated AI subcommittee has been established under the Public Institution Management Committee, and AI utilization performance is now being reflected in public institution management evaluations and integrated disclosure systems. Incentive mechanisms such as workforce expansion support have been introduced to encourage AI investment and practical implementation. In addition, the National Network Security Framework (N2SF) guidelines were introduced in September 2025 to address security challenges that have long been viewed as major barriers to adopting generative AI and cloud services. Under this framework, government networks are classified according to confidentiality levels — Confidential (C), Sensitive (S), and Open (O) — with differentiated security controls applied based on operational characteristics and data sensitivity.

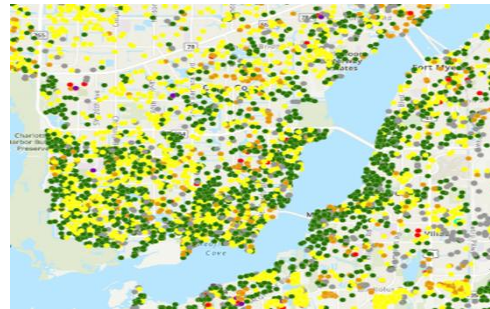
These global trends demonstrate that advanced governments increasingly regard AI adoption in the public sector not as an optional initiative, but as an essential national strategy. Governments are simultaneously expanding AI education programs for public officials, integrating government data resources, establishing AI operational guidelines, and strengthening public-private partnerships in order to create practical environments for real-world AI utilization.

Global Best-Practice Cases

FEMA — AI-Based Disaster Damage Assessment (United States)

A representative example is the U.S. Federal Emergency Management Agency (FEMA), which introduced an AI-based automated disaster damage assessment system. Previously, disaster damage investigations relied heavily on field-centered manual assessments, often requiring several weeks to analyze damage levels and establish recovery priorities. By applying AI-based satellite and aerial image analysis technologies, FEMA reduced the assessment period to within 72 hours. In addition, the AI system achieved a damage

classification accuracy rate of 92.3 percent while providing real-time visualization of affected areas through digital mapping systems. These capabilities significantly improved emergency decision-making and disaster response efficiency, demonstrating how AI can contribute not only to administrative support but also to national disaster management systems directly linked to public safety.



ATO — AI-Driven Tax Filing Error Prevention (Australia)

The Australian Taxation Office (ATO) implemented AI-based data analytics systems capable of automatically detecting abnormal patterns and potential filing errors while providing real-time guidance and correction support during the tax reporting process. As a result, the system identified more than 636,000 suspicious cases and protected approximately AUD 78.9 million in tax revenue. This example illustrates how AI can enhance not only administrative efficiency, but also the reliability of tax administration and the soundness of national fiscal management.



KEPCO — AI-Based Early Wildfire Response (Republic of Korea)

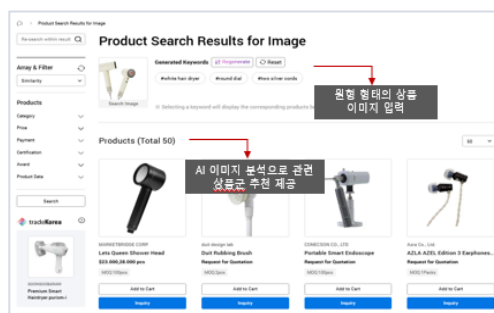
The Korea Electric Power Corporation (KEPCO) established an AI-based early wildfire response system utilizing national power infrastructure. As climate change increases the risk of large-scale wildfires, KEPCO leveraged transmission towers, power infrastructure, and CCTV systems to detect flames, smoke, and abnormal signals in real time through AI analysis. The system is connected with related agencies such as the Korea Forest Service in order to strengthen early response coordination. Through AI-based analysis, the system achieved a wildfire detection accuracy rate of 99 percent while reducing investment costs by more than

50 percent compared to conventional approaches. This represents a significant example of combining existing public infrastructure with AI technologies to strengthen both public safety and disaster response capabilities.



KOTRA — AI-Powered Overseas Market Information Services (Republic of Korea)

The Korea Trade-Investment Promotion Agency (KOTRA) introduced the 'Chat Haedeurim' service, which integrates fragmented global business information through AI-based systems and provides AI-powered consultation services. Through this platform, businesses can obtain relevant overseas market information more quickly and efficiently while benefiting from improved personalized consulting services. KOTRA is also advancing AI-based upgrades to its digital trade platform 'buyKOREA,' incorporating AI-powered product recommendations, image search capabilities, and automated buyer-seller matching systems to strengthen connections between Korean companies and overseas buyers. These initiatives improve export support services and help businesses expand into global markets more effectively, demonstrating how public institutions can utilize AI not only to improve internal administrative efficiency, but also to strengthen private-sector competitiveness and promote national export growth.



Key Implications for Public-Sector AX

Current AI utilization across public sectors both domestically and internationally remains largely focused on partial, function-specific applications. Moving forward, however, comprehensive institution-wide AX strategies and package-based project planning will become increasingly important. Several strategic implications emerge for the future direction of public-sector AX.

First, public institutions must strengthen their roles not simply as adopters of AI technology, but as professional organizations capable of strategically utilizing AI. Second, innovative approaches are needed to overcome the budgetary, workforce, and infrastructure limitations commonly faced by public institutions, through new operational models capable of efficiently utilizing limited resources while simultaneously achieving multiple policy objectives. Third, public institutions must move beyond isolated AI pilot projects and establish comprehensive AX strategies aimed at transforming overall organizational management into AI-centered operational systems — encompassing not only administrative automation, but also governance structures, decision-making systems, data management, workflows, and organizational culture. Fourth, the experience and capabilities accumulated by leading public institutions should be expanded across the broader public sector, with greater inter-agency collaboration and shared utilization systems enabling more efficient AX implementation even under limited resource conditions.

Strategic Framework and Reference Model

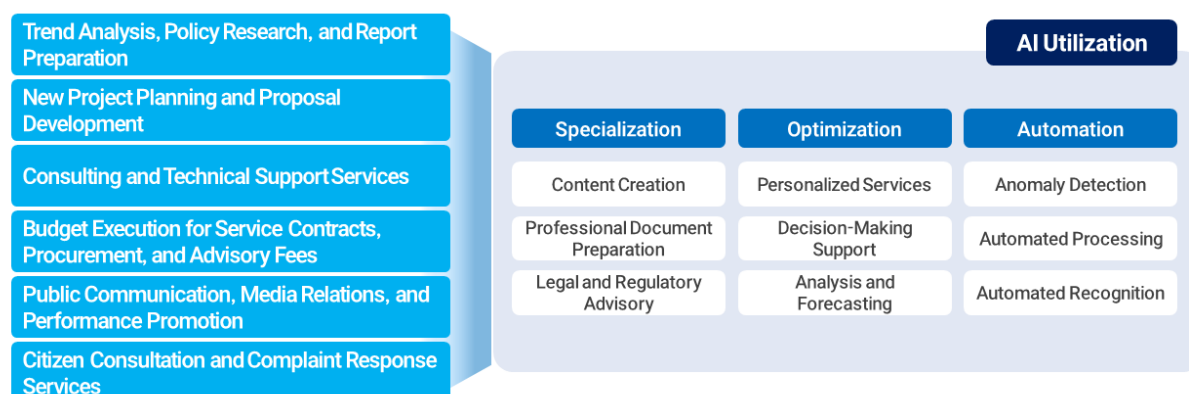
NIA's Role and AX Opportunities

NIA carries out a wide range of responsibilities related to digital government, data governance, AI, policy research, global cooperation, consulting, and citizen services. As generative AI and large-scale AI models continue to evolve rapidly, these existing work processes are entering a new phase of innovation driven by AI capabilities. AI is no longer limited to automating repetitive tasks; it is now capable of supporting large-scale data analysis, professional document preparation, decision-making assistance, and personalized services, thereby improving both productivity and expertise across public-sector operations. In this context, NIA must actively identify AI utilization opportunities across its major operational domains and gradually establish AI-driven operational innovation systems.

In the area of domestic and international trend analysis, policy research, and report preparation, generative AI can dramatically reduce the time required for translation and summarization of international materials, support real-time analysis of major policy announcements and global technology trends, and enable faster publication of policy research reports. AI also creates major opportunities in new project planning and proposal development, where related data collection, preliminary drafting, and policy linkage analysis can be conducted much more efficiently, allowing NIA to secure earlier project launches and ensure sufficient implementation periods.

Consulting and technical support services represent another area where AI can simultaneously improve efficiency and expertise. AI can automate repetitive tasks such as large-scale data collection, document analysis, meeting summary preparation, and benchmark case research, allowing experts to focus more on high-value strategic analysis and consulting activities. Significant opportunities also exist in administrative and budget-related functions, where AI can provide automated guidance for complex regulations while supporting anomaly detection and automatic error verification for internal control systems. In public communication and media outreach, generative AI can support the rapid production of press releases, card news, blog posts, and promotional materials. Finally, citizen consultation

and complaint-response services represent a representative area where AI-driven automation and personalization can provide 24-hour automated response systems, enhancing consultation quality and response speed while reducing administrative workloads.



Internal Readiness Assessment

The OECD identifies three key enablers for successful AX in the public sector: data, professional talent, and digital infrastructure. This indicates that simply introducing AI technologies alone is insufficient to achieve meaningful innovation. NIA has assessed its internal readiness for AX and identified both significant strengths and areas requiring further improvement across these three domains.

From a data perspective, NIA possesses a substantial amount of accumulated data and document assets generated through various policy and operational activities. However, much of this data remains dispersed across individual systems, limiting integrated organizational utilization. Many datasets are not yet structured in formats readily usable for AI training and advanced analytics, and many documents containing institutional expertise and operational know-how are still stored on individual PCs, making organization-wide sharing and reuse difficult.

In terms of professional talent, NIA has established a positive foundation for AI adoption across the organization. More than 40% of employees possess AI-related certifications, and over 86% reportedly utilize AI tools in their daily work activities. These figures indicate a relatively high level of AI acceptance and practical utilization among employees. However, the proportion of employees holding advanced degrees in AI, data science, or software

engineering remains limited to approximately 10%, and only a small number of staff members possess direct experience in AI strategy development, advanced consulting, large language model (LLM) training, or AI service development. In other words, while general AI literacy is expanding across the organization, the number of highly specialized professionals capable of leading institution-wide AX initiatives remains insufficient.

From the perspective of digital infrastructure, NIA has already established certain foundational systems, but important limitations still remain for transitioning to a fully AI-centered operational environment. Core management information systems are currently in place; however, many workflows still rely heavily on manual processing, and fragmented operational processes continue to create inefficiencies. In particular, the lack of high-performance computing resources such as GPUs for internal AI model training and AI service development could become a significant constraint for future AX implementation.

NIA's AX Cases to Date

NIA is actively applying AI technologies across its operations and public services in order to lead AX in the public sector. The following cases demonstrate how advanced AI technologies — including Generative AI, Retrieval-Augmented Generation (RAG), and Small Large Language Models (sLLM) — can be integrated into actual administrative operations and citizen services to simultaneously improve efficiency and service quality. These cases are particularly meaningful because they show how public institutions can achieve practical innovation and operational efficiency even under limited budgetary and workforce conditions.

Case 1: AI-Based Automated Counseling System for Smartphone Overdependence

NIA developed and pilot-operated a RAG-based AI counseling model equipped with functions for overdependence diagnosis, solution recommendations, and professional counselor linkage. Traditional counseling services often faced accessibility limitations due to time constraints, location restrictions, and psychological barriers associated with counseling participation. To address these challenges, NIA introduced a 24-hour non-face-to-face AI counseling service that guarantees anonymity and improves accessibility for adolescents and citizens experiencing smartphone overdependence. The AI system analyzes counseling content, provides personalized recommendations and information, and connects users to professional counselors when necessary. As a result, the time required for preparing bulletin-board

responses was reduced by 62%, while the rate of connection to face-to-face counseling services increased threefold.

Case 2: AI-Based Automation for Similarity and Duplication Review of Project Proposals

NIA applied an AI-based automatic similarity verification system to 43 project proposals submitted under a hyperscale AI platform support program. Previously, reviewers were required to manually compare and evaluate proposals, resulting in substantial administrative workloads and time consumption. The system first conducted organization-name searches and then automatically identified projects with proposal title similarities exceeding 50% for priority review by responsible staff members. Through this approach, proposal review time was reduced by approximately 91.3%, resulting in an estimated reduction of 11.5 working hours. This case illustrates how AI can automate repetitive large-scale administrative review processes while simultaneously improving operational efficiency and accuracy within public institutions.

Case 3: RAG-Based Internal Helpdesk Generative AI Chatbot

NIA independently developed and operated an sLLM-based helpdesk chatbot trained on 145 internal documents, including operational manuals and institutional regulations. Given the importance of security and operational reliability in public institutions, the system successfully completed national security reviews conducted by the National Intelligence Service. In addition, the chatbot server was physically separated from external networks to minimize cybersecurity risks. The chatbot was designed to provide not only immediate responses to user inquiries, but also supporting evidence materials and attached reference documents, thereby improving convenience and reliability. As a result, helpdesk inquiry volumes decreased by approximately 33%, while development costs were reduced by approximately KRW 170 million compared to external outsourcing approaches.

Case 4: Automation of Institutional Regulation Revision Using Generative AI

NIA trained ChatGPT-based generative AI systems using regulation revision checklists and legislative review standards in order to automatically identify typographical errors, citation errors, and logical inconsistencies across 94 institutional regulations. Previously, regulation maintenance required extensive manual document reviews conducted by multiple staff members over long periods of time. By introducing AI-based first-stage screening processes, NIA significantly improved operational efficiency. External experts and responsible departments subsequently conducted cross-checking procedures to ensure consistency and

accuracy in regulatory revisions. As a result, review time per regulation was reduced by approximately 67%, generating an estimated total time reduction of up to 22.5 working days.

Strategic Assessment and Implications

NIA's comprehensive organizational assessment revealed that although significant opportunities and innovation potential for AI utilization exist across the institution, systematic organization-wide strategies and implementation foundations remain insufficient. Generative AI and data-driven technologies have demonstrated applicability across most work areas, including policy research, project planning, consulting, administration, and public communication, with some areas already showing measurable results. However, current AI utilization remains largely limited to individual-level or departmental pilot initiatives and has not yet expanded into a fully integrated institution-wide AX system.

The assessment further revealed that systematic mechanisms for analyzing and prioritizing AI applicability by work type remain underdeveloped, causing AI utilization to depend on individual competency and personal initiative rather than functioning as part of an institution-wide innovation strategy. Current AI utilization effects are also largely concentrated on productivity improvements such as summarization, document drafting, and repetitive task reduction, rather than transforming institution-wide operational systems and policy execution capabilities. The number of specialists capable of AI strategy development, advanced consulting, and generative AI service implementation remains insufficient, while infrastructure resources for internal AI service development and operation are still limited.

These findings point to the following strategic priorities. First, NIA must move beyond fragmented department-level AI utilization and systematically analyze AI opportunities across all organizational work types in order to establish a comprehensive institution-wide AX strategy. Second, NIA should establish organization-wide AI models and shared AI utilization systems capable of generating substantial operational innovation outcomes, as reliance solely on individual or department-level AI usage will not be sufficient to significantly improve overall productivity and policy execution capacity. Third, employee-held data and operational know-how should be systematically transformed into institutional knowledge assets through organization-wide knowledge management systems. Fourth, employee AI competency and AI literacy should be continuously strengthened beyond basic usage training, with practical capabilities related to AI strategy planning, data analytics, and generative AI service design systematically internalized across the organization.

Core Strategic Direction

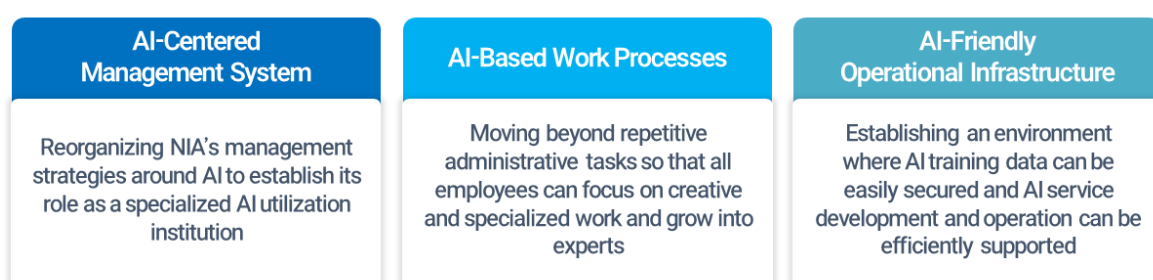
NIA's AX initiative goes beyond simply introducing AI technologies and applying them to selected tasks. The core direction is to redesign NIA's management systems, operational processes, and infrastructure into an AI-centric model — shifting from viewing AI as merely a supportive tool to embedding AI throughout organizational operations, decision-making structures, and daily work processes in order to fundamentally transform the operating paradigm of public institutions. As the Republic of Korea's leading public-sector AI institution, NIA is expected not only to improve internal efficiency, but also to establish and disseminate a leading model for public-sector AX.

One of the most important directions is the establishment of an AI-centered management system. NIA plans to reorganize its mid- to long-term management strategy around AI while strengthening its identity and role as a specialized AI utilization institution. Rather than limiting AI adoption to specific departments or individual projects, NIA aims to transform the entire organization into an AI-based operational system by redesigning organizational management methods and decision-making structures. AI is to be applied across all management areas — including strategic planning, human resources, finance and accounting, safety management, ethical governance, and public communication — in order to strengthen both operational efficiency and policy execution capabilities. NIA also aims to foster an AI-centered organizational culture in which AI utilization becomes part of daily work practices, while knowledge sharing and collaboration become standard organizational behaviors.

Another major direction involves the establishment of AI-based work processes. NIA plans to promote AI-driven innovation across all operational areas so that employees can move beyond repetitive administrative work and focus more on creative and specialized responsibilities. In the short term, the organization intends to identify and automate repetitive tasks that can quickly improve overall efficiency, including document review, data organization, citizen response services, and administrative processing. From a mid- to long-term perspective, NIA aims to move beyond simple task automation and redesign institution-wide work processes through AI-based analysis and optimization — not merely adding AI tools to existing workflows, but fundamentally redefining the division of roles between humans and AI while optimizing overall operational flows.

The establishment of AI-friendly operational infrastructure is also essential for successful AX implementation. NIA must secure stable access to AI training data while creating environments

that support efficient AI service development and operation. This requires eliminating organizational data silos, improving data accessibility, and standardizing data into AI-compatible formats. NIA must also secure dedicated AI infrastructure capable of supporting generative AI services and AI application development, including cloud-based and GPU-enabled computing environments, while establishing AI-friendly information security systems capable of ensuring both public-sector security requirements and operational innovation. Security and innovation should not be viewed as conflicting objectives; rather, NIA must create balanced governance systems that enable safe and responsible AI utilization within secure operational environments.



Five Core Implementation Principles

In promoting AX, NIA aims to establish implementation principles that go beyond simple technology adoption and instead emphasize public accountability, sustainability, and institutional responsibility. Unlike private-sector digital innovation, public-sector AX must simultaneously ensure public trust, security, ethics, and public value. Accordingly, NIA plans to promote AX based on five core principles.

The first principle is Citizen-Centered Value. AI utilization in public institutions should not remain limited to internal operational efficiency, but should ultimately lead to public service innovation and improvements that citizens can directly experience. NIA therefore intends to implement AX in a way that allows citizens to naturally experience enhanced service quality and administrative convenience without necessarily recognizing the underlying AI technologies themselves. Public values such as fairness, transparency, accountability, and efficiency are to be prioritized throughout, ensuring that public-sector AI functions not merely as a technology initiative, but as a citizen-centered administrative innovation strategy.

The second principle is Employee Participation. Successful AX cannot be achieved solely by a small group of specialists or specific departments; rather, it must be driven through

organization-wide participation and collaboration. NIA therefore plans to actively gather employee feedback, expand AI education and hands-on training opportunities, support employee-led internal AI projects, and foster organizational cultures focused on knowledge accumulation and sharing, with the goal of creating an environment in which all employees actively participate in AI-driven innovation.

The third principle is Private-Sector Collaboration. Because AI technologies evolve rapidly and private-sector innovation capabilities play a major role in technological advancement, NIA plans to cooperate with small and medium-sized enterprises (SMEs), venture companies, and startups in order to accelerate AI innovation and contribute to the growth of the broader AI ecosystem. Rather than relying exclusively on internally developed systems, NIA intends to prioritize the adoption of advanced private-sector AI solutions while acting as an Early Adopter within the public sector, simultaneously promoting public-sector AX and supporting the development of the Republic of Korea's domestic AI industry ecosystem.

The fourth principle is Security and Ethics. Public-sector AI utilization must be fundamentally grounded in public trust, making safe and ethical AI implementation essential. Key considerations include personal data protection, cybersecurity, prevention of algorithmic bias, and transparency in AI-supported decision-making processes. NIA plans to systematically incorporate ethical standards throughout the design and operation of AI services while treating information security and privacy protection as top priorities. This principle reflects the understanding that AI innovation and information security should not be viewed as conflicting objectives, but rather as complementary values that must be achieved simultaneously.

The fifth and final principle is Agile Implementation. Because AX involves high levels of uncertainty and rapid technological change, NIA recognizes the importance of phased implementation and continuous improvement rather than large-scale one-time deployment approaches. AX initiatives will be promoted through a continuous cycle of Pilot — Build — Operation — Improvement — Expansion — Sustainable Development. This agile approach is expected to minimize initial risks and implementation failures while enabling successful AI practices to gradually expand across the organization based on verified operational outcomes.

Action Plans and Implementation Roadmap

Five-Stage AI Transformation Journey

To systematically promote public-sector AX, NIA has proposed a five-stage AI transformation roadmap. This phased roadmap demonstrates how public institutions can evolve beyond simple AI adoption toward AI-ready and AI-native organizations, ultimately becoming sustainable AI-centered innovation organizations capable of continuously adapting to future technological and societal changes.

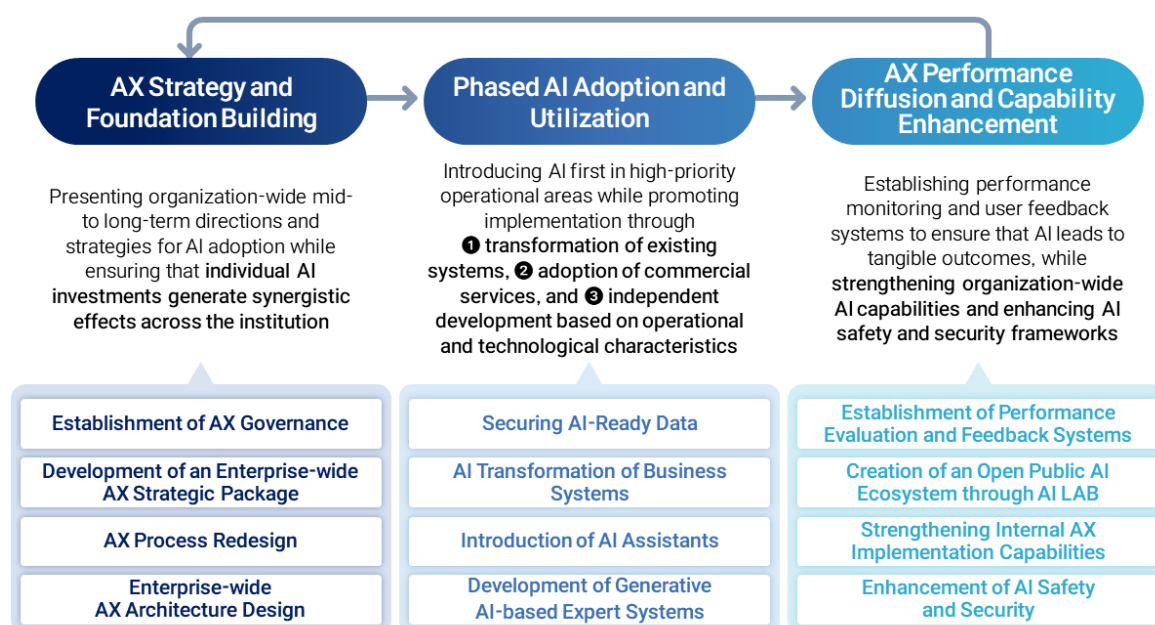


The first stage, Awareness, focuses on building organizational consensus regarding the necessity of AI transformation while strengthening employees' understanding of AI and basic utilization capabilities. The second stage, Setup, involves establishing AI strategies and governance systems while securing essential AI foundations such as high-quality data, GPU/NPU infrastructure, and security frameworks. The third stage, Systemization, represents the phase in which AI becomes embedded across organizational workflows and public services, enabling full-scale AI-driven operational innovation, with key priorities including the development of high-quality AI-based services and the expansion of AI-by-Design approaches

throughout institutional operations. The fourth stage, Enhancement, focuses on implementing expert-level AI capabilities through advanced AI datasets, AI agent-based decision-making systems, and highly sophisticated AI operational models. Finally, the Transformation stage envisions the emergence of Physical AI-based innovation systems capable of integrating human behavioral data and physical environment data into institutional operations and public services, at which point organizations evolve into highly adaptive AX organizations in which AI is naturally embedded throughout management systems, decision-making processes, and service innovation activities.

Implementation Plan

NIA's AI Transformation Roadmap is designed to systematically advance institutional AI capabilities through three major strategic areas: AX Strategy and Foundation Building; Phased AI Adoption and Utilization; and AX Performance Diffusion and Capability Enhancement. Under these three pillars, a total of 12 core initiatives are systematically interconnected and implemented.



Strategic Area 1: AX Strategy and Foundation Building

The first strategic area focuses on establishing organization-wide AI governance and long-term strategic foundations. The Establishment of AX Governance initiative aims to build an institutional governance structure capable of coordinating and driving organization-wide AI

transformation, centered on a Chief AX Officer (CAXO), while restructuring major institutional regulations — including organizational bylaws, budgeting, human resources, procurement, and auditing systems — by 2026 to align with AI-native organizational environments. The Development of an Enterprise-wide AX Strategic Package focuses on comprehensively establishing the institution's AI transformation direction and implementation framework, adopting a flexible Rolling Plan approach with short implementation cycles to ensure continuous adaptation to rapidly evolving technologies and policy environments. The AX Process Redesign initiative seeks to fundamentally redesign operational processes before introducing AI services, with AX process redesign frameworks and methodologies to be developed by 2026 and systematically incorporated into future project planning and procurement processes. Finally, the Enterprise-wide AX Architecture Design initiative focuses on establishing an integrated technological foundation for effective utilization of AI and data across the organization, including disaster recovery (DR) and redundancy systems beginning in 2027 to ensure stable and resilient operation of enterprise-wide AI services.

Strategic Area 2: Phased AI Adoption and Utilization

The second strategic area focuses on introducing and expanding AI services based on organizational priorities and operational characteristics. The Securing AI-Ready Data initiative focuses on transforming all organizational data into formats immediately utilizable by AI systems, with integrated systems for automatically transforming and utilizing data as AI training resources planned for establishment by 2027. The AI Transformation of Business Systems initiative focuses on redesigning existing operational systems around AI-based workflows, automating repetitive administrative tasks while strengthening predictive analysis and decision-support functions, and introducing personalized interfaces and AI-human collaborative work environments. The Introduction of AI Assistants initiative aims to establish AI-driven environments for document drafting, summarization, retrieval, and analysis, with customized AI assistants trained on institutional knowledge and internal data planned for deployment from 2028. The Development of Generative AI-based Expert Systems initiative seeks to combine specialized domain knowledge and reasoning rules with generative AI technologies to support advanced decision-making in highly specialized tasks such as simulation, advanced analytics, policy evaluation, and crisis response.

Strategic Area 3: AX Performance Diffusion and Capability Enhancement

The third strategic area aims to expand AI-driven outcomes across the organization and establish a sustainable innovation ecosystem. This area encompasses the building of performance evaluation and feedback systems to continuously improve AI service quality; the

fostering of an open public AI ecosystem through AI LAB collaboration with industry and academia; the strengthening of internal AX implementation capabilities through systematic talent development; and the enhancement of AI safety and security frameworks to ensure trustworthy and sustainable AI utilization in the public sector.

Expected Outcomes

Through AX, NIA expects to generate measurable improvements in operational efficiency, organizational capability, and decision-making quality by 2027. First, the organization aims to reduce time spent on repetitive administrative tasks by approximately 70% through automation of document processing, reporting, and routine operational activities, enabling employees to focus more on creative, strategic, and high-value work. Second, NIA aims to improve employee job satisfaction by approximately 90%, based on internal survey results indicating that AI utilization increases the amount of time available for creative work by reducing repetitive tasks. Third, by applying AI-based verification and automation systems across workflows, NIA plans to improve consistency in work quality by approximately 50% through reduction of human error and standardization of operational processes.

Fourth, NIA plans to develop an AI competency assessment model tailored to its work characteristics and provide organization-wide education and training programs in order to improve employees' AI utilization capabilities by more than 20% on average. Finally, through AI-powered analytics automation and intelligent review systems, NIA expects to significantly reduce the time required for reporting, budget review, and decision preparation, ultimately improving the speed and accuracy of organizational decision-making by approximately 1.8 times.



NIA's AX strategy represents not simply a digital efficiency project, but a comprehensive organizational transformation process that redesigns institutional management systems, work methods, and operational infrastructure around AI-centered models. Through this transformation, NIA is expected to simultaneously drive internal innovation and present

scalable AI transformation models for the broader public sector across the Republic of Korea.

Based on its internal innovation experience and as the Republic of Korea's leading digital and AI institution, NIA is committed to continuously expanding AI-driven public-sector innovation while maintaining the highest standards of public accountability, transparency, and public value — and to sharing the lessons and frameworks developed through this journey with international partners and organizations.

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