

Consultation on Digital Economy Prosperity Blueprint:

Charting Lao PDR's Path to
a Practical Policy Framework and
Incentive Design

KISDI

2025

DONG-MIN YIM
SANGWON KO
MIN SONG

SEUNGWOO SON
SUNGJOON LIM
BYUNGKON KIM

HOON KIM
PHOUNGEUN
LUANGCHANDAVONG





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Framework and Incentive Design



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KISDI Consulting Group

Korea Information Society Development Institute (KISDI)

Dr. Dong-Min YIM,
Associate Fellow, Department of International Cooperation Research (Project Manager)
Dr. Sangwon KO,
Senior Fellow, Department of International Cooperation Research
Ms. Min SONG,
Associate Fellow, Department of International Cooperation Research

Yulchon LLC

Dr. Seungwoo SON,
Senior Advisor, Director of Technology Export and Import Control Response Center

Korea Industry Intelligentization Association (KOIIA)

Dr. Sungjoon LIM,
Head of Industrial Convergence Division

K-DATA

Mr. Byungkun KIM,
Director of MyData-Global Team

Pythagraph Co., Ltd

Mr. Hoon KIM, CEO

Foreword

It is my great pleasure to introduce the report, “Consultation on Digital Economy Prosperity Blueprint: Charting Lao PDR’s Path to a Practical Policy Framework and Incentive Design.” This report represents a significant milestone in Lao PDR’s efforts to advance its digital economy and to build a data-driven foundation for inclusive and sustainable growth.

As digital transformation accelerates globally, the digital economy and the effective use of data have become critical drivers of economic growth, public service delivery, and inclusive participation. In Lao PDR, while digital infrastructure and connectivity have expanded rapidly under the country’s 20-Year Digital Economy Vision (2021–2040), a persistent “utilization gap” remains. Fragmented government systems, limited institutional capacity, a shortage of digital skills, and the absence of a dedicated legal framework for public data constrain the translation of investment into tangible outcomes. Addressing these challenges requires a comprehensive and well-sequenced approach that integrates institutional, legal, and technical dimensions.

In response to this need, the Korea Information Society Development Institute (KISDI), in collaboration with the Ministry of Technology and Communications (MTC) /the National Data Center (NDC) of Lao PDR, conducted a policy consultation program throughout 2025, and the KISDI Consulting Group and the MTC/NDC worked closely through a series of meetings, seminars, and workshops, focusing on (i) diagnosing the status and future direction of the digital economy, (ii) designing a practical framework for digital transformation, and (iii) strengthening the legal and regulatory foundation for public data governance.

This report presents the key outputs of the consultation. It includes a diagnosis of Lao PDR’s digital economy and a transformation framework structured around eight strategic pillars, policy and legislative recommendations centered on the enactment of a Public Data Act—together with a draft of its structure and core provisions—and a practical model for converging and visualizing Laos–Korea statistical data. These outputs are designed not as standalone solutions, but as part of a phased and adaptive process toward building a coherent, trusted, and sustainable digital economy.

Korea’s experience in developing its ICT sector and digital economy has demonstrated

the importance of strong institutional foundations, clear regulatory frameworks, and the systematic use of public data as a national asset. Through this consultation, KISDI aims to share relevant policy insights and practical approaches while respecting Lao PDR's unique institutional context and development trajectory, including its 4th Five-Year Development Plan (2026–2030).

KISDI remains committed to supporting partner countries in achieving sustainable digital transformation and inclusive growth through knowledge sharing and policy cooperation. We hope that this report will serve as a valuable reference for policymakers, regulators, and stakeholders in Lao PDR and beyond.

Finally, we would like to express our sincere appreciation to the MTC/NDC of Lao PDR for their close collaboration and leadership throughout this consultation. We also extend our gratitude to the Ministry of Science and ICT (MSIT) of Korea for their continuous support and guidance.

Sangkyu Rhee

President

Korea Information Society Development Institute

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Glossary of Terms

ADSL	Asymmetric Digital Subscriber Line
AI	Artificial Intelligence
APEC	Asia-Pacific Economic Cooperation
API	Application Programming Interface
ASEAN DEFA	ASEAN Digital Economy Framework Agreement
B2C	Business-to-Consumer
C2C	Consumer-to-Consumer
CBDC	Central Bank Digital Currency
CBPR	Cross-Border Privacy Rules
CERT	Computer Emergency Response Team
CII	Critical Information Infrastructure
DFFT	Data Free Flow with Trust
DGA	Digital Government Development Agency of Thailand
DGRA	Digital Government Readiness Assessment
DMA	Digital Maturity Assessment by UNDP
DMA	Digital Markets Act by EU
DPI	Digital Public Infrastructure
DSA	Digital Services Act by EU
E-CRVS	Electronic Civil Registration and Vital Statistics
EDCF	Economic Development Cooperation Fund of Korea
EGDI	E-Government Development Index
EHR	Electronic Health Records
e-LMIS	Electronic Logistics Management Information System
EU	European Union
EUR	Euro (EU currency)
Fintech	Financial technology
FOIA	Freedom of Information Act by USA
GDP	Gross Domestic Product
GDPR	General Data Protection Regulation
GDX	Government Data Exchange
HVDs	High-Value Datasets
ICT	Information and Communication Technology

IFMIS	Integrated Financial Management Information System
IoT	Internet of Things
KISDI	Korea Information Society Development Institute
KOGL	Korea Open Government License
KRW	Korean Won (Korean currency)
LLM	Large Language Model
MCP	Model Context Protocol
MoCap	3D Motion Capture Data
MOES	Ministry of Education and Sports of Laos
MTC	Ministry of Technology and Communications of Laos
NDC	National Data Center of Laos
NIA	National Information Society Agency
NRI	Network Readiness Index
O&M	Operation and Maintenance
ODA	Official Development Assistance
ODRA	Open Data Readiness Assessment by World Bank
OECD	Organisation for Economic Co-operation and Development
OSI	Online Services Index (sub-index of EGDl)
PFM	Public Finance Management
PIPL	Personal Information Protection Law by China
PMO	Project Management Office
POC	Proof Of Concept
RCEP	Regional Comprehensive Economic Partnership
RLHF	Reinforcement Learning from Human Feedback
SIM	Subscriber Identity Module
SME	Small and Medium-sized Enterprise
SOEs	State-Owned Enterprises
STT	Speech-to-Text
UNDP	United Nations Development Programme
USD	United States Dollar (US currency)
WMS	Warehouse Management System
ZB	Zettabytes

Executive Summary

1. Introduction

Since the early 2000s, the Korea Information Society Development Institute (KISDI) has provided ICT policy consultation, including best practices and case studies related to the area of consultation to policymakers from developing countries.

For 2025, ICT Policy Consultation was proposed to Laos in the area of the digital economy and data policy. KISDI of Korea and the Ministry of Technology and Communications (MTC)/National Data Center (NDC) of Laos agreed on the subject of the consultation program. By February 2025, the KISDI Consulting Group was established headed by Dr. Dong-Min YIM of KISDI and consisted of experts and professionals from industry in the field of digital economy and data.

As part of the Consultation on Digital Economy Prosperity Blueprint in Laos, a series of meetings, seminars, and workshops were held from February to December of 2025 through close cooperation between the KISDI Consulting Group and the MTC/NDC.

2. Status and Future Direction of the Digital Economy in the Lao PDR

Lao PDR has established ambitious digital transformation frameworks through its 20-Year Digital Economy Vision (2021–2040) and supporting legislation. However, a critical ‘utilization gap’ persists: infrastructure expansion significantly outpaces actual service adoption. Despite GDP recovery to 4.1% in 2024 and completion of 28 legal instruments (56% of targets), systemic barriers—fragmented government systems, insufficient funding, and limited institutional capacity—continue to hinder progress. This summary outlines current achievements, persistent challenges, and strategic initiatives to bridge the gap between policy ambition and practical outcomes.

The Ministry of Technology and Communications has demonstrated commitment to establishing foundational legal structures, completing key legislation, including the Law on High Technology and the revised Law on Electronic Transactions during 2021–2025. However, enforcement gaps and fragmented regulation limit effectiveness. Strengthening data governance, AI/blockchain frameworks, and cross-ministerial coordination remains essential to align policy ambitions with practical implementation.

The nation's digital landscape reflects expanding connectivity alongside constrained effective utilization. Low global rankings in network readiness and e-government underscore critical deficits in human capital and digital governance. While fintech adoption is robust, structural barriers persist: insufficient digital literacy, limited Lao-language content, affordability constraints, and pronounced urban-rural disparities. These factors prevent infrastructure investments from translating into widespread service adoption.

The National Data Center (NDC) serves as the strategic hub for government digital transformation, mandated to provide cloud computing, hosting services, and Big Data management. The planned Government Data Exchange (GDX) system addresses critical data centralization deficits and ministerial fragmentation. Yet unclear governance structures and limited technical capacity currently constrain the NDC's effectiveness in delivering interoperable services.

Lao PDR faces a significant digital skills deficit that limits effective digital transformation. Insufficient ICT professionals, limited public sector institutional capacity, and low active engagement in digital platforms create critical bottlenecks. The flagship Digital Human Resource Development Center (2025–2029) has been launched to systematically build public sector digital capacity. The National Digital Transformation Committee (2023) provides coordination mechanisms for cross-ministerial alignment.

Success requires focused action on three priorities: strengthening institutional capacity through targeted training and digital literacy programs; establishing effective data governance and interoperability frameworks to enable cross-ministerial service delivery; and ensuring adequate, sustainable funding mechanisms that reduce donor dependency. Addressing the utilization gap—ensuring digital infrastructure translates into active adoption and meaningful outcomes—is essential for the Lao PDR to achieve its digital economy vision and regional competitiveness.

3. Building Digital Economy and Society in Lao PDR

Based on a diagnosis of the current digital maturity, this chapter proposes a comprehensive framework for Lao PDR's digital transformation, structured around eight

strategic pillars—including the enactment of a Public Data Act—and presents Korean best practices in data utilization to provide actionable insights.

Specifically, the Action Plan emphasizes that digital transformation requires a fundamental institutional shift beyond mere infrastructure expansion. To this end, it outlines synchronized strategies across eight core pillars—ranging from governance leadership to technical infrastructure—and identifies the enactment of the ‘Public Data Act’ as a prerequisite for overcoming data silos and ensuring regulatory consistency. Furthermore, by integrating sector-specific Korean best practices in areas such as healthcare and manufacturing, this chapter provides a practical roadmap for generating tangible economic value and addressing social challenges through a data-driven ecosystem.

4. Digital Legislation and Regulatory Framework

To build a sustainable digital economy and data-driven government, the Lao PDR must move beyond fragmented ICT initiatives and establish an integrated governance framework centered on public data. While Laos has enacted laws related to cybersecurity, electronic transactions, and personal data protection, it lacks a dedicated legal framework that clearly defines public-sector data as a national public asset and systematically governs its provision, standardization, and reuse. As a result, public data utilization remains project-based, inconsistent across institutions, and constrained by legal uncertainty, limiting private-sector innovation and AI-driven services. International experience—including Korea, the EU, and ASEAN countries—demonstrates that effective digital transformation requires a government-wide, platform-based approach supported by clear legal obligations, reuse rights, and accountability mechanisms.

Against this backdrop, the enactment of a Public Data Act is proposed as the central policy instrument for Laos's digital transformation. The proposed law would establish public data as a reusable public asset, define the data provision obligations of public institutions and the reuse rights of users, and introduce a central-government-led governance structure supported by phased implementation and protective safeguards. Rather than replacing existing data-related laws, the Act would fill a critical legislative gap by providing a coherent institutional foundation for public data opening, circulation, and commercial reuse. By serving as the legal backbone for a national public data portal and AI-ready data ecosystem, the Public Data Act would function as the starting point for digital government, private-sector innovation, and the long-term development of Laos's digital economy.

5. Convergence of Visualization of Laos–Korea Statistical Data

This chapter proposes a practical and short-term model for digital economy cooperation between Laos and Korea through the convergence and visualization of bilateral statistical data. Building on existing cooperation—such as the Laos Statistical Information Service established with Statistics Korea—the proposal aims to link national statistics and up-to-date economic and industrial data using Korean AI-based data processing and visualization technologies. By developing a proof-of-concept (POC) portal, the chapter demonstrates how statistical data, current affairs information, and media-based datasets can be integrated, visualized, and shared in near real time to support market analysis, policy research, and private-sector entry into both countries. The chapter further highlights the role of visualization as a critical digital infrastructure that enhances data accessibility, policy responsiveness, and cross-border collaboration, while reducing language barriers and supporting AI-ready data environments. Ultimately, the proposed model is positioned as a scalable foundation for expanding data-driven services and joint AI development across East Asia, contributing to sustainable digital economy growth and strengthened Korea–Laos cooperation.

6. Recommendations on Policy and Legislation

This chapter presents policy and legislative recommendations for advancing a data-driven digital economy in the Lao PDR, emphasizing public data governance as a core enabler of digital transformation. It recommends strengthening whole-of-government coordination through a PMO-centered leadership structure, enacting a Public Data Act aligned with international standards, and reinforcing the role of the Ministry of Technology and Communications in operating a national open data platform. The chapter highlights that the existing digital laws in Laos do not sufficiently govern public data as a national public asset and proposes a framework law to institutionalize phased, platform-based data opening while balancing utilization with safeguards. Supported by sustainable financing, digital skills development, and infrastructure investment, the proposed framework is positioned as a foundational instrument for digital government, private-sector innovation, and the long-term growth of the digital economy in Lao PDR.

Introduction

1.1. Project Overview

Since the early 2000s, the Korea Information Society Development Institute (KISDI) has provided ICT Policy Consultation with best practices and case studies related to the area of consultation to policymakers from developing countries.

For 2025, ICT Policy Consultation was proposed to Laos in the area of the digital economy and data policy. KISDI of Korea and the Ministry of Technology and Communications (MTC)/ National Data Center (NDC) of Laos agreed on the subject of the consultation program. By February 2025, the KISDI Consulting Group was established headed by Dr. Dong-Min YIM of KISDI and consisted of experts and professionals from industry in the field of digital economy and data.

As part of the Consultation on Digital Economy Prosperity Blueprint in Laos, a series of meetings, seminars, and workshops were held from February to December of 2025 through close cooperation between the KISDI Consulting Group and the MTC/NDC.

Table 1 **Project Overview**

Project title	Consultation on Digital Economy Prosperity Blueprint: Charting Lao PDR's Path to a Practical Policy Framework and Incentive Design
Agency	KISDI(Korea) and MTC/NDC (Lao PDR)
Period	February–December 2025
Objectives	To provide recommendations on implementing the policy for Digital Economy Prosperity of Lao PDR by reviewing current ICT status and national Digital Economy policies in Lao PDR while sharing best practices of Korea.

1.2. Project Schedule

As part of the Consultation on Digital Economy Prosperity Blueprint: Charting Lao PDR's Path to a Practical Policy Framework and Incentive Design in Laos, the consulting group had a kick-off meeting with MTC/NDC in February 2025 to specify the work scope of the consultation. The Group had its field study to Laos in June to identify the current ICT status of Laos, and to discuss digital economy and data policy issues with Laotian government officials and professionals in the field. During the first visit, preparatory works such as data collection and interviews were conducted while holding a series of meetings.

In October 2025, Laotian government officials from NDC were invited to Korea for a one-week program of site-visits and seminars. They visited government agencies and public institutions in charge of the digital economy and data in Korea.

In November 2025, the final visit for the final presentation on the draft of the consultation report was made in Laos. The consulting group analyzed the current digital economy and data policy and legislative issues in Laos and Korea, and provided recommendations on the issues.

Table 2 Progress of the Project

Phase 1 (Lao PDR, February)	Kick-off meeting: Specification of Work Scope for the Consultation
Phase 2 (Lao PDR, June/July)	Field Study: First workshop/ Preparatory Work (Data Collection, Survey, Interviews, etc.)
Phase 3 (Korea, October)	Study Visit: 1 week program of seminars and site-visits (KISDI invited 6 persons from MTC of Lao DPR)
Phase 4 (Lao PDR, November)	Final Visit: Drafting the Final Report and Presentation

1.3. Consulting Group

As mentioned in the project overview, the KISDI Consulting Group was formed in February 2025. The group was headed by Dr. Dong-Min YIM of KISDI and consisted of experts and professionals from industry in the field of digital economy and data. The list of the KISDI Consulting Group is shown in Table 3.

Table 3 KISDI Consulting Group

Organization	Participant	Position	Remarks
KISDI (Korea Information Society Development Institute)	Dong-Min YIM	Associate Fellow	PM for 2025 project with Laos
	Sangwon Ko	Senior Fellow	Consultant
	Min SONG	Associate Fellow	Program Officer
Yulchon LLC	Seungwoo SON	Senior Advisor	Consultant
KOIIA (Korea Industry Intelligentization Association)	Sungjoon LIM	Head of Industrial Convergence Division	Consultant
K-Data	Byungkun KIM	Director	Consultant
Pythagraph Co.,Ltd	Hoon KIM	CEO	Consultant

Status and Future Direction of Digital Economy in the Lao PDR¹

2.1. Issues Introduction

The Lao PDR has strategically positioned digital transformation as a fundamental mechanism to achieve national industrialization and modernization goals. The national digitalization vision is structurally supported by three core pillars: Digital Government, Digital Economy, and Digital Society. This strategic direction is formally codified in the 20-Year Digital Economy Vision (2021–2040), the 10-Year Digital Economy Strategy (2021–2030), and the 5-Year Digital Economy Development Plan (2021–2025).

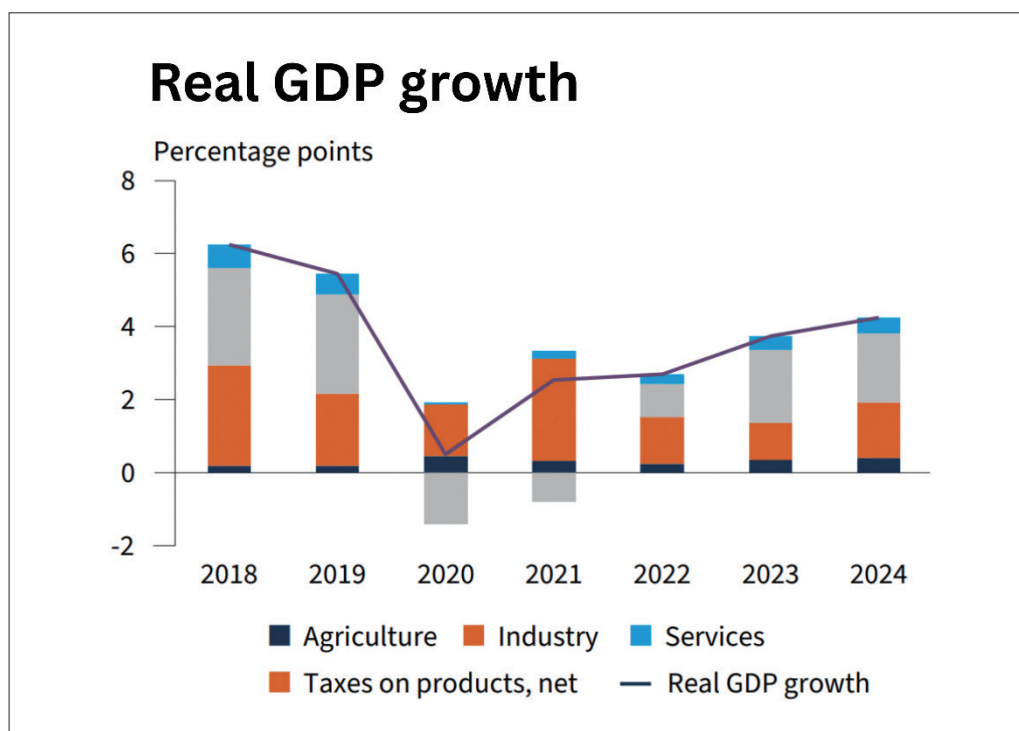
The implementation period of the 5-Year Plan (2021–2025) was undertaken in the midst of significant global economic instability, including the lingering effects of the COVID-19 pandemic, energy crises, and rising inflation. These external factors contributed to macroeconomic difficulties that posed substantial challenges to national development efforts.

The Lao economy experienced a period of recovery and accelerating real GDP growth between 2020 and 2024 (Figure 1), following a notable dip in 2020. In 2020, real GDP growth was estimated to be below 2%. Growth then rebounded in 2021, estimated at around 3.3%, before slightly slowing down in 2022, estimated near 2.5%. The economy showed robust acceleration in 2023, approaching 4% growth.

The Lao economy demonstrated accelerated real GDP growth leading up to its peak performance of 4.1% in 2024 (Figure 1). Two major highlights during this period include strong sectoral performance, with growth driven by services, electricity, mining, agriculture, and manufacturing.

¹ This chapter was prepared by Mr. Phoungoun Luangchandavong, a local consultant and CFO of Luckxay Co., Ltd., Lao PDR.

Figure 1 The Lao Economy grew by 4.1% in 2024



Source Lao Statistics Bureau, World Bank staff estimates.

Secondly, fiscal consolidation progressed significantly in 2024, supported by stronger domestic revenue collection, achieving a fiscal surplus of 1.6%.

Looking ahead, growth is projected to soften to 3.5% in 2025. This deceleration is anticipated due to continued monetary and fiscal tightening, moderating external demand, and the peak in debt repayments scheduled for 2025, which elevates financing needs.

Despite significant infrastructural achievements, critical systemic weaknesses include funding insufficiency, system fragmentation, and lack of standardization. Limited and inadequate state funding remains a major obstacle, preventing many technical and infrastructure investment projects from being fully implemented or completed on schedule. A core technical challenge is the lack of centralized data management. Many ministries operate proprietary, non-interoperable systems (described as “each one for themselves”), leading to data silos, duplicated investments, high maintenance costs, and eventual instability once donor aid for specific systems concludes. Moreover, existing legislation faces challenges in enforcement due to limited institutional capacity and insufficient technical expertise within regulatory agencies.

In response, the government has focused on legislative and institutional solutions.

Key mitigation efforts include the establishment of the National Digital Transformation Committee (2023). Crucially, the strategic priority involves developing the Government Data Exchange (GDX) system to unify and centralize data sharing, complemented by plans for the 2024 implementation of the Fund for Telecommunications and Digital Development to bolster domestic financing.

2.2. Overview and Background of the Lao Digital Economy and Data

The Lao PDR remains digitally nascent in terms of maturity and effectiveness, despite infrastructural progress. The country achieved an average digital maturity score of 1.7 in 2022, indicating significant room for development. In the 2024 global rankings, Lao PDR was ranked 108th out of 133 economies on the Network Readiness Index (NRI). This ranking places Laos in the lower-middle tier globally, suggesting that while basic digital infrastructure exists, critical gaps remain in technology adoption, human capital development, and digital governance.

The ranking of 152nd on the E-Government Development Index (EGDI) reflects a critical bottleneck in the Online Services Index (OSI). While infrastructure (fiber backbone) has expanded, the actual digitization of public services remains static. The gap between high mobile penetration (infrastructure) and low e-government usage highlights a “utilization gap” caused by a lack of integrated digital public services that provide end-to-end transaction capabilities.

These indices reveal specific policy-relevant insights. The NRI ranking indicates that Laos faces particular challenges in three dimensions: technology utilization (not just access), digital skills development, and governance frameworks that enable effective digital transformation. The low EGDI ranking specifically points to weaknesses in online service delivery, telecommunications infrastructure quality, and human capital readiness within the public sector. Compared to regional peers such as Vietnam (ranked 86th on NRI) and Thailand (ranked 54th), Laos lags significantly, suggesting that infrastructure investment alone is insufficient without parallel investments in skills, regulatory frameworks, and institutional capacity.

To manage these accelerated changes and realize national targets, sustaining growth requires addressing inherent multidimensional challenges—technical, social, and cultural—through robust digital governance and designated responsible entities.

2.2.1. Digital Services and Platform

The Lao Government has initiated efforts to digitalize public administration and facilitate a burgeoning digital financial sector, though implementation effectiveness varies significantly.

① E-Government Systems:

The Gov-X Super App, launched in August 2023, serves as a central integration point for services like digital driving licenses, business registration, social welfare checks, and document tracking. However, actual usage data indicates limited adoption, with download rates remaining below 15% of the target population as of mid-2024. Implementation challenges include inadequate user awareness campaigns, limited digital literacy among target users, and technical issues with backend system integration that result in service disruptions.

Electronic document management systems such as the E-Office System (used by 12,252 users in 2023) and Teleconferencing Systems (used by 11,462 users in 2023) are employed by over 45 government agencies. While adoption exists, effectiveness is constrained by insufficient training programs, resistance to workflow changes, and limited technical support capacity. Many agencies continue parallel paper-based processes due to trust issues and regulatory requirements that still mandate physical signatures.

Other sectoral platforms include e-LMIS for education management and E-CRVS for civil registration. However, interoperability between these systems remains a critical challenge, with data sharing hindered by technical incompatibilities and institutional reluctance to share information across ministerial boundaries.

② Financial Technology and E-Commerce:

Financial technology (Fintech) and e-commerce spaces are developing rapidly, driven by consumer migration to digital payments. Mobile money platforms, including LDB Wallet, BCEL One, and M-Money, have seen rapid expansion, supported by over 3,500 agent locations and 30,000 merchants nationwide. This represents one of the more successful digital adoption stories, facilitated by clear economic incentives, private sector leadership, and regulatory support from the Bank of Lao PDR.

Cross-border QR payments have been enabled in Thailand, Cambodia, and Vietnam, facilitating commerce and tourism. The Bank of Lao PDR conducted a pilot of a digital kip (Central Bank Digital Currency) in 2023, focused on enhancing efficiency in payments and promoting financial inclusion, though broader rollout timelines remain uncertain pending regulatory clarification.

The commercial ICT sector includes a total of 2,943 shops and companies providing services in 2023, with 119 companies focused on software creation and services.

However, this represents only 0.3% of the total labor force, well below regional averages and the government's target of 1% by 2025. Regarding digital entrepreneurship, the e-commerce sector sees significant growth on C2C and B2C platforms, with social media (TikTok, Facebook) acting as primary channels for transactions among small businesses. Startups are emerging in innovative areas such as ride-hailing (LOCA), digital identity (LaoKYC), and food delivery (GoTeddy), though many face challenges in scaling due to limited access to capital, regulatory uncertainties, and skills shortages.

2.3. Evaluation of the Overall Digital Environment in Laos

The digital sector is identified as having a critical and important role in achieving national socio-economic goals, particularly the transition toward an industrialized and modern economy. However, Lao PDR exhibits a striking paradox wherein widespread digital infrastructure access has not translated into high utilization or competency, revealing a critical need for skills development and effective implementation mechanisms.

As of early 2024, internet penetration in Lao PDR reached 66.2 percent of the population (5.08 million users), indicating broad public access, largely driven by mobile connectivity. Despite this infrastructural reach, Lao PDR scored low on global readiness indices. This disconnect between access and effective use stems from several structural factors: insufficient digital literacy education in schools (only 5% of primary schools have internet access), limited awareness of online safety and data privacy, absence of meaningful digital content in the Lao language, and economic constraints that limit device ownership and data plan affordability, particularly in rural areas.

2.3.1. Digital Infrastructure and Connectivity

The digital infrastructure in Lao PDR is characterized by rapid expansion, heavily focused on mobile and optical fiber networks to ensure broad national reach. Infrastructure development has made significant strides in connecting the country as below:

Table 4 Digital Infrastructure in Laos

1. Fiber Optic Backbone	The total length of Fiber Optic Cable reached 101,360 kilometers in 2023, with over 98,500 km laid by 2023. This extensive backbone ensures connectivity across all provinces and districts nationwide. However, the “last-mile” connection remains problematic, with limited fiber-to-the-home deployment in rural areas and significant cost barriers for residential connections.
2. Mobile Network Coverage	Mobile signal coverage (2G) reached 97% of all villages across the country in 2023, leaving approximately 4% of villages (primarily in remote mountainous regions) without basic mobile access. Coverage for Mobile Broadband (3G) reached 85% of all villages in 2023, marking a 1% increase over the previous year. The coverage of the 4G/LTE network reached 75–78% of the population in 2023, representing a 56% increase compared to 2022. 5G technology has been deployed in Vientiane and selected provinces, though commercial viability and use cases remain limited.
3. International Interconnectivity	Connectivity is reinforced by 18 international transmission lines linking Laos with neighboring countries including Thailand, Vietnam, China, Cambodia, and Myanmar, contributing to regional integration and bandwidth resilience. This positions Laos strategically as a potential transit hub for regional data flows, though this opportunity remains largely unrealized due to limited data center capacity and unclear regulatory frameworks for cross-border data transfers.
4. Provider Landscape	The market is dominated by major telecommunication service providers: Unitel (50% market share), Lao Telecommunications Public Company (33%), TPLUS Digital Sole Co., LTD, ETL Company Limited, Best Telecom Company Limited, and Lao ASIA Pacific Satellite Co., LTD. Market concentration raises concerns about competitive pricing and service quality, though regulatory oversight by the Telecommunications Regulatory Authority remains limited due to capacity constraints.

2.3.2. Internet Penetration and Usage

Laos exhibits high digital adoption rates driven almost entirely by mobile technology, though usage patterns reveal significant quality gaps:

Table 5 Internet Penetration and Usage in Laos

1. Overall Penetration	The registration rate for internet use reached 66% relative to the population in 2023, with total registered internet users at 4,861,166 accounts. However, registration does not equate to active or meaningful use. Survey data suggests that actual regular internet usage is closer to 40–45% of the population, with many registered accounts inactive or used only sporadically.
2. Mobile Usage	Mobile phone subscriptions (voice-only active numbers) totaled 4,963,758 in 2023. When factoring in all mobile SIM cards (voice and mobile broadband data), the total user registration reached 9,390,546, corresponding to a 127% penetration rate. This over-100% penetration indicates multiple SIM card ownership per person, driven by differential pricing strategies and coverage variations between providers, rather than genuine expansion of the user base.
3. Data Dominance and Behavioral Shift	There has been a clear, continuous decline in traditional services like fixed telephone voice calls. Mobile-broadband Internet traffic reached 39,143 million GB in 2023, significantly dominating fixed-wired broadband traffic of 17,099 million GB. This trend confirms that citizens prioritize digital applications (WhatsApp, Facebook Messenger, Line, TikTok, Instagram) for communication. However, this usage remains concentrated in basic social media and messaging, with limited adoption of productivity tools, online learning platforms, or e-government services, reflecting both skills gaps and limited availability of relevant Lao-language content.
4. Fixed Broadband	Fixed broadband adoption remains below 2% of households. Legacy wired internet systems (ADSL, Cable modem) are declining, being replaced by high-speed Fiber-to-the-home/building (FTTH/B) systems. However, the high cost of installation and monthly fees (representing 5–10% of average household income in many areas) severely limits adoption.
5. Internet Speed	As of January 2025, median mobile download speed was reported at 34.62 Mbps, and fixed broadband speed was 40.09 Mbps. While showing year-on-year improvements, these speeds remain below regional averages (Vietnam: 48.5 Mbps mobile, Thailand: 52.3 Mbps mobile) and insufficient for bandwidth-intensive applications such as online education, telemedicine, or cloud-based business services.

2.3.3. Urban and Rural Divide

A significant challenge within the digital environment is the structural gap in access and quality between metropolitan and remote areas, which perpetuates inequality and limits the effectiveness of national digital initiatives.

Table 6 Challenges of Digital Gap between Urban and Rural Area

1. Coverage Inequality	While major urban areas benefit from near-universal coverage for telecommunication and internet networks, remote rural areas face significant gaps. Statistical data from 2023 indicates that 4% of villages nationwide still lack mobile phone signal access. These villages, typically located in mountainous border regions, face geographic barriers that make infrastructure deployment economically unviable without targeted subsidies, which remain insufficient.
2. Quality and Affordability Gaps	Rural areas depend almost entirely on mobile networks for access. However, users in these remote regions encounter barriers including higher costs relative to income (data plans can represent 8–12% of monthly income in rural areas versus 2–3% in urban areas), lower overall speeds due to network congestion and older technology, and difficulties accessing suitable devices (smartphones remain unaffordable for many rural households).
3. Impact on Digital Transformation	This divide has profound implications for digital government and digital economy initiatives. E-government services designed for urban populations remain inaccessible to rural citizens who lack connectivity or devices. Digital financial services, while growing rapidly in cities, show minimal penetration in rural areas where cash remains dominant. Educational digital platforms cannot reach rural schools lacking internet connectivity. This reinforces existing inequalities and risks creating a two-tier digital society.

2.3.4. SWOT Analysis of Lao Digital Economy and Data Economy

The following analysis synthesizes the current digital environment, identifying strategic factors that influence Laos' digital transformation trajectory:

Table 7 SWOT Analysis of Lao Digital Economy and Data Ecosystem

Strengths	Weaknesses
• Government commitment and policy momentum • Expanding fiber and mobile networks • Young, tech-savvy population • Regional integration and cross-border links • Growth in digital payments and fintech • Emerging e-government platforms (Gov-X, etc.)	• Infrastructure gaps in rural areas • Low digital literacy, especially in rural areas • Skills mismatch and workforce shortages • Regulatory fragmentation and slow enforcement • Limited access to devices and affordable internet • Heavy reliance on donor funding
Opportunities	Threats
• Positioning as a regional data and connectivity hub • Expansion of digital ID and e-services • International partnerships and donor support • Innovation in fintech, e-commerce, and startups • Adoption of emerging technologies (AI, blockchain)	• Cybersecurity risks and data breaches • Widening digital divide (urban-rural, gender) • Outmigration of skilled workers • Economic volatility and funding constraints • Climate change and natural disasters

2.4. Analysis of Laws and Policies Related to Digital Transformation and Data

2.4.1. Purpose and Scope

The legal and policy framework serves as the core enabler of the digital economy and data governance. This framework is designed with the dual mandate of facilitating digital transactions, including e-commerce and online services, while simultaneously safeguarding digital interests through data and privacy protection, cybersecurity for critical infrastructure, and digital inclusion.

This analysis provides a comprehensive assessment of key instruments spanning major legal domains, including ICT infrastructure, electronic transactions, e-commerce, and cybercrime legislation. The review extends to specific policy instruments regarding e-government, digital ID, and digital finance. The explicit research goal is to evaluate how these instruments function in practice, identify strengths and critical gaps, and assess their efficacy in supporting the national digital agenda.

2.4.2. Analysis of Current Digital Economy and Data related Laws and Policies

The Ministry of Technology and Communications (MTC) prioritized legislative action during the 2021–2025 period, successfully creating or revising 28 legal instruments (representing 56% of the planned target of 50 documents). Key completed instruments include the Law on High Technology (2021), the revised Law on Electronic Transactions (2022), and the Decree on Digital Government Services and Administration (2022). This demonstrates prioritization of foundational legal structures, notably in governance, transactions, and emerging technology areas like digital assets.

Table 8 Key Completed Laws, Decrees, and Decisions

Year	Key Completed Laws, Decrees, and Decisions
2021	Law on High Technology Telecommunications Law (Revised) Decree on Technology Account Decision on the Experimental Implementation of Digital Asset Transactions
2022	Law on Electronic Transactions (Revised) Decree on Digital Government Services and Administration Decision on Digital Identity Verification

Table 9 Pending Critical Legislation

Year	Critical Strategies and Pending Legislation:
2024	Fund for Telecommunications and Digital Development
On-going	The National Cybersecurity Development Strategy until 2035 Decree on E-GIF Decree on Digital Data Governance

2.4.3. Assessment of Policy Effectiveness and Legal Gaps

While the formal legal framework demonstrates significant progress, analysis of implementation reveals substantial gaps between policy objectives and actual outcomes:

Enforcement and Regulatory Capacity Challenges	The legal framework functions in a siloed manner. For example, the Law on Electronic Data Protection (2017) exists but faces severe implementation constraints. Only an estimated 30–40% of government agencies have established required data protection protocols, and private sector compliance remains largely voluntary and unverified.
Gaps in Data Governance Regulation	Critical regulatory gaps persist, limiting the effectiveness of data-related initiatives: • Limited operational guidance on data sharing: While the planned Decree on Digital Data Governance aims to address this, current ambiguity creates practical obstacles. • Regulatory uncertainty around emerging technologies: Legislation provides no specific guidance on AI, machine learning, blockchain, or IoT applications, creating barriers to innovation.
The “Paper-Digital” Implementation Gap	There is a marked divergence between formal adoption and ground-level execution. Although the Decree on Digital Government mandates online administration, administrative culture remains paper-based. The absence of clear “operational guidance” means that civil servants often require physical copies of digitally submitted documents, nullifying the efficiency gains of the legal mandate.
Policy-Reality Disconnection	Several high-profile policy initiatives face significant implementation challenges. While Government Data Exchange (GDX) System strategically prioritized, development faces multiple obstacles: • Technical challenges: Legacy systems in ministries use incompatible technologies, requiring costly middleware solutions. • Institutional resistance: Ministries view data as institutional assets and fear losing control or being held accountable for data quality issues. • Capacity limitations: Fewer than 50 government IT staff nationwide possess the technical skills required for GDX implementation and maintenance.

2.4.4. Strategic Direction for the 4th 5-Year Development Plan (2026–2030)

The 4th Plan outlines ambitious goals designed to address identified deficiencies:

Table 10 The 4th 5-Year Development Plan (2026–2030) Goals	
Objective Area	2030 Target
Governance	Achieve 100% online government administration and services.
Infrastructure	Achieve 100% 5G signal coverage nationwide.
Economic Contribution	Increase the Digital Economy's contribution to 7% of GDP.
Human Resources	Increase digital workers to 2% of the total labor force.
Innovation & Data	Establish the AI Innovation Center, AI Data Center, and Digital Park/ICT Park.
Data Exchange	Develop the Government Data Exchange (GDX) system for centralized, unified data sharing.

These targets are highly aspirational and risk being unachievable without substantial increases in budget allocation, capacity building, and addressing institutional coordination challenges. For example, data exchange aims to develop a GDX system for centralized, unified data sharing; however, technical and institutional barriers remain unaddressed.

2.5. National Data Center (NDC) of Laos: Role and Current Status

The National Data Center (NDC) is an essential component of the government's digital economy strategy, operating under the Ministry of Technology and Communications (MTC). The NDC was formally established in February 2025 through Decree No. 113/NU, with core mandates in data integration, data protection, and national data governance.

Strategic Vision and Mandate: Recognizing data as a vital resource for socio-economic development, the NDC views the organized collection of digital data and the creation of Big Data capabilities as an urgent priority. The NDC is tasked with providing critical digital infrastructure services to support government functions, including Cloud Computing, Hosting, Co-location, Servers, and Big Data management. Beyond infrastructure provision, the NDC is envisioned as the central hub for implementing the Government

Data Exchange (GDX) system and serving as the technical foundation for whole-of-government digital transformation.

Current Implementation Status: The NDC is currently in early implementation phases, working to establish basic operational capacity and institutional frameworks. As of mid-2025, the NDC has collaborated with the private sector to conduct a feasibility study for investing in and establishing the physical infrastructure and the GDX system. The facility serves as a central hub for some government ICT systems and cloud services, hosting services such as the e-Office systems and Gov-X platform and developing capacity for compliant cloud services for private businesses. However, the operationalization of the NDC is currently obstructed by the absence of a unified GDX standard. Without an enforced Interoperability Framework (e-GIF), data remains locked in proprietary formats across different ministries.

Critical Assessment of Utilization and Effectiveness: However, the utilization of the NDC remains low and fragmented despite its strategic recognition. The feasibility study results revealed that only 37% of government ministries leverage the National Data Center for their ICT needs. A substantial 44% of ministries still operate their own independent data centers, perpetuating the siloed systems approach due to the absence of a whole-of-government architecture. The remaining ministries either lack dedicated data infrastructure or rely on external commercial providers.

Systemic Factors Limiting NDC Effectiveness: Several structural obstacles prevent the NDC from achieving its strategic objectives:

Governance and Institutional Challenges	1) Unclear data ownership frameworks. 2) Absence of mandatory migration policies. 3) Lack of data sharing policies and legal frameworks. 4) Inadequate coordination and oversight.
Technical and Interoperability Issues	1) Legacy system incompatibility. 2) Absence of technical standards and documentation. 3) Performance and reliability concerns.
Human Capital and Capacity Constraints	1) Limited skills in advanced technologies. 2) Inadequate training and professional development.

2.6. Overall Digital Skill of Laos

Laos is currently characterized by a pronounced digital skills gap, which poses one of the most significant barriers to achieving its goals of digital transformation and economic modernization. This structural deficiency in human capital and institutional capacity directly undermines the effectiveness of policy efforts and contributes substantially to the country's low international performance indicators.

Despite profound deficits, the government has demonstrated a high-level commitment through the 5-Year National Digital Economic Development Plan (2021–2025). This strategy aims to establish modern legal and technical governance frameworks. Key policy milestones include the 2025 deadline for transitioning from analogue to digital operations, the enactment of foundational cybersecurity legislation, and strengthening regulatory capacity for effective participation in ASEAN DEFA negotiations. However, the ambitious policy vision confronts harsh implementation realities rooted in insufficient human capital at all levels.

2.6.1. Analysis of Digital Skills Gaps Across Segments

- **Basic digital literacy among the general population:** The overall digital skills profile reflects limitations rooted in educational system capacity, infrastructure availability, and limited exposure to digital technologies, especially outside urban centers.
- **Shortage of advanced ICT professionals:** The capacity for high-skilled Information and Communication Technology (ICT) work is critically limited:
 - **Severe Workforce Shortage:** This falls dramatically short of the government's target of 1% by 2025 (35,000 professionals), which itself remains modest compared to regional peers (Thailand: 2.5%, Vietnam: 1.8%).
 - **Critical Skills Gaps in Specialized Domains:** Laos faces acute shortages of highly skilled professionals in technical domains essential for digital transformation.
- **Public Sector Institutional Capacity Limitations:** Beyond individual skills, institutional capacity constraints significantly impede digital transformation.

2.6.2. Capacity Building Initiatives and Implementation Effectiveness

To address these extensive gaps, Laos has launched several capacity-building initiatives, though their effectiveness varies significantly:

1) Educational Digitalization

① Khang Panya Lao Digital Learning Platform:

- **Scope and Reach:** The Ministry of Education and Sports (MOES) has prioritized ICT skills integration into curricula. The “Khang Panya Lao” national digital learning platform has been expanded, registering over 127,000 users and 300,000 active users, providing digital textbooks and support for teacher training.
- **Implementation Challenges:** Despite impressive registration numbers, active sustained usage remains much lower (estimated 30–40% of registered users actively engage monthly). Barriers include limited school internet connectivity, insufficient devices, inadequate teacher digital pedagogy skills, and limited Lao-language content beyond basic materials.
- **Impact Limitations:** The platform focuses primarily on content delivery rather than digital skills development. Students consume content but do not develop critical digital competencies like computational thinking, digital content creation, or online collaboration.

② ICT Curriculum Integration:

- **Policy Progress:** MOES has mandated ICT skills integration across curricula, establishing digital literacy learning outcomes for each grade level.
- **Implementation Gap:** Only an estimated 15–20% of schools have implemented the ICT curriculum due to a lack of trained teachers, absence of computer labs or devices, and competing priorities. Rural schools lag significantly, with fewer than 5% offering any ICT instruction.
- **Teacher Capacity:** Fewer than 10% of teachers possess adequate digital skills to teach ICT effectively. Teacher training programs remain insufficient in scale and quality.

2) Public Sector Capacity Development:

① Digital Human Resource Development Center (2025–2029):

- **Strategic Initiative:** A flagship initiative establishing a specialized center tasked with developing and delivering training programs for public officials in digital literacy, data management, cybersecurity awareness, and digital service delivery. This represents recognition of the critical need for systematic public sector digital capacity building.
- **Implementation Status:** As of late 2025, the center is in the early establishment phase, with administrative structures being created but training programs not yet operational at scale.
- **Anticipated Challenges:** Historical experience with similar government training centers suggests potential obstacles including inadequate sustained funding,

difficulty attracting and retaining quality instructors, and challenges ensuring training translates into changed workplace behaviors rather than remaining theoretical.

② **Ministry of Technology and Communications Training:**

- **Targeted Capacity Building:** MTC officials and civil servants received training in Digital Government, Information Security, Data Governance, and Policy Strategy in September 2023 to improve institutional oversight of policy milestones.
- **Limited Scope:** This training reached approximately 150–200 officials, a small fraction of the thousands requiring digital capacity. Training was concentrated at senior levels, with limited reach to operational staff who implement systems day-to-day.
- **Sustainability Concerns:** Training was donor-funded and one-time in nature. Without systematic ongoing professional development programs, skills atrophy and participants cannot keep pace with evolving technologies and practices.

3) Broader Public Financial Management Capacity:

① **World Bank IFMIS Implementation (approved November 2025):**

- **Scope:** To enhance budget planning, accountability, and transparency in public spending, the World Bank approved a project to implement an Integrated Financial Management Information System (IFMIS) and train government staff.
- **Capacity Building Component:** The project includes substantial training components for finance ministry staff, line ministry budget officers, and provincial financial personnel in using the IFMIS system and modern Public Finance Management (PFM) practices.
- **Implementation Considerations:** IFMIS projects globally face high failure rates (estimated 50–60% fail to achieve objectives). Success requires not only technical system implementation but fundamental changes in financial processes, workflows, and institutional culture—often underestimated challenges.

2.6.3. Educational System Output Analysis

- **IICT Performance Against Targets:** For the 2021–2025 period, the Institute of Information and Communication Technology (IICT) produced over 600 ICT/telecom personnel who entered the job market. This output achieved only 48% of the 5-year target of 1,250 personnel. This significant shortfall stems from limited faculty capacity (too few qualified instructors), high dropout rates (approximately 25–30% of enrolled students), brain drain (many graduates emigrate immediately after

- graduation), and limited institutional capacity to expand enrollment.
- **MTC Recognition of Constraints:** The MTC explicitly recognizes that the lack of qualified human capital is a major constraint to achieving full digitalization. The sector faces an ongoing challenge a shortage of ICT specialists and researchers, in both quantity and quality, required to meet the demands of national digitalization.

Building Digital Economy and Society in Lao PDR

3.1. Digital Economy and Essential Policy Elements for Digital Transformation

The digital economy is defined as a new stage of social and economic development driven by advanced technologies such as Artificial Intelligence (AI), Big Data, Cloud Computing, and the Internet of Things (IoT).² This transformation is reshaping how governments, businesses, and citizens interact, creating new opportunities for productivity, inclusion, and sustainable growth. Digital transformation in the Lao PDR is not merely about adopting new technologies but is a process of structural change that encompasses governance improvement and institutional reform. For Lao PDR, this transformation represents a strategic opportunity to leapfrog traditional development barriers and integrate into the regional and global digital economy. To achieve a prosperous digital economy, essential policy elements must move beyond simple digitization of records to focus on creating a multi-layered ecosystem connecting telecommunications, data, industry, administration, and society. Achieving this requires coherent policy frameworks, sustained institutional commitment, and meaningful coordination across all levels of government and the private sector.

3.2. Diagnosis of the Digital Economy and Digital Input for Various sectors in Lao PDR

Lao PDR is at an early but active stage of digital transformation, with growing momentum across key sectors of the economy.³ Momentum in digital payments and mobile connectivity

signals growing readiness, even as areas such as digital literacy and regulatory coherence continue to develop. To accurately diagnose the current state and identify necessary digital inputs, the government draws on internationally verified diagnostic frameworks.

3.2.1. UNDP Digital Maturity Assessment (DMA)

1) Background and Purpose

The Digital Maturity Assessment (DMA) was conducted jointly by UNDP and the Ministry of Technology and Communications (MTC) of Lao PDR in 2022. It was initiated in response to a clear need: despite incremental improvements in e-government rankings, Lao PDR ranked ninth out of ten ASEAN countries in digital access, affordability, and quality of internet services. The Government recognized that without a systematic, evidence-based diagnosis of its digital readiness, efforts to improve operational efficiency and service delivery through ICT would remain fragmented and ad hoc. As a strategic diagnostic tool, the DMA provides:

- Defines how to interpret readiness, assessing the current maturity and performance level of each pillar.
- The DMA provides a comprehensive framework to evaluate the level of digital transformation across multiple sectors of government and society.

The DMA's core objective was to provide the Government with a structured diagnostic of digital readiness across ministries and provinces, identify key gaps in internal operations and service delivery, and generate actionable pilot recommendations that could serve as the foundation for a national digital transformation roadmap.

2) Methodology

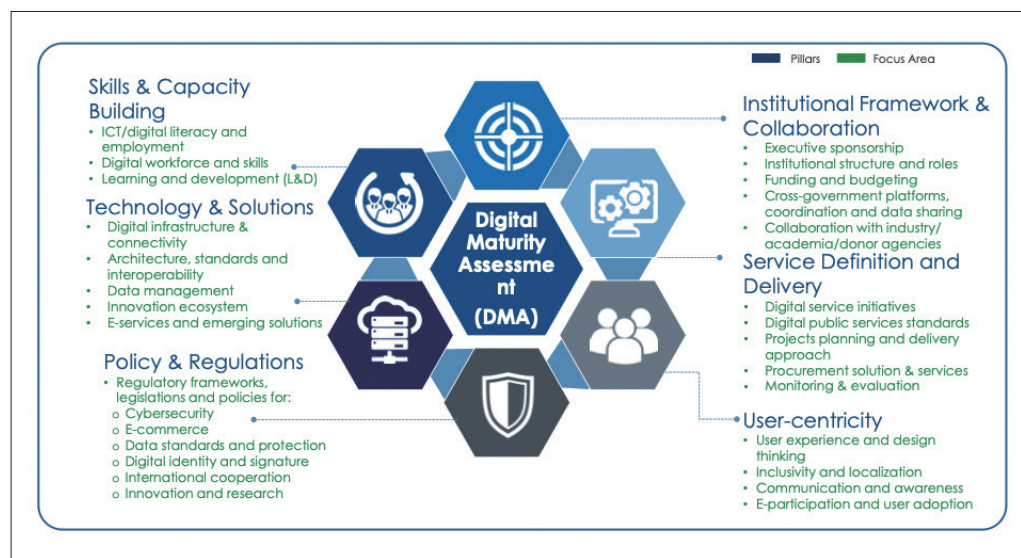
The DMA employed a six-step approach: (1) desk study of existing digital government strategies and policies; (2) surveys administered to ministries and provinces; (3) deep-dive interviews and focus group discussions with key stakeholders; (4) data analysis and scoring; (5) gap identification; and (6) pilot recommendations. The assessment covered 17 ministries and 5 provinces, with deep-dive interviews at 8 ministries and 3 provinces. The framework evaluates digital readiness across six pillars, each assessed on a five-level maturity scale from “Digitally Nascent” to “Digitally Innovative,” producing a composite national score out of 5.

- 2 Organisation for Economic Co-operation and Development (OECD), A Roadmap Toward a Common Framework for Measuring the Digital Economy, OECD Publishing, 2020.
- 3 United Nations Development Programme (UNDP), Digital Maturity Assessment: Lao People's Democratic Republic, UNDP Lao PDR, 2022.

3) Key Findings

Lao PDR received an overall DMA score of 1.7 out of 5, placing it at the “Digitally Nascent” stage nationally—though trending toward “Digitally Emerging.” Ministries scored 1.8 and provinces 1.3, reflecting a significant urban-rural digital divide. Policy & Regulations was the strongest pillar (2.2), while User Centricity was the weakest (1.4), indicating that services remain largely supply-driven rather than citizen-centered.

Figure 2 UNDP Digital Maturity Assessment (DMA) Framework



Source UNDP (2022)

Table 11 Lao PDR DMA Pillar-Level Assessment Results (2022)

Pillar	Score (/5)	Maturity Level
Technology & Solutions	1.8	Digitally Emerging
Policy & Regulations	2.2	Digitally Emerging
Skills & Capacity Building	1.7	Digitally Nascent
User Centricity	1.4	Digitally Nascent
Service Definition and Delivery	2.0	Digitally Emerging
Institutional Framework & Collaboration	1.9	Digitally Emerging
Overall (Country Level)	1.7	Digitally Nascent

Source UNDP (2022)

Key cross-cutting findings include: rapid infrastructure expansion without corresponding governance frameworks; strong legislative momentum not yet translated into operational

practice; limited digital literacy outside the capital; and e-services that remain supply-driven rather than responsive to citizen needs. A comparative analysis against Estonia, South Korea, Rwanda, Bhutan, Thailand, and Vietnam confirmed that Lao PDR lags across all six pillars, though its digital transformation is more recent than these comparators.

4) Summary of DMA Recommendations

The DMA identified five prioritized pilot initiatives: (1) a ministry portal based on common standards and architecture; (2) socio-technical analysis of cross-ministerial collaboration platforms; (3) a skills assessment of the government ICT workforce; (4) a one-stop government super app for citizen services; and (5) a digital education delivery program targeting marginalized and rural populations. These pilots are sequenced to build absorptive capacity before broader rollout.

The DMA's significance for this Blueprint lies in the evidence base it provides: the weak scores on User Centricity and Skills & Capacity Building underscore the importance of demand-side investments alongside infrastructure; the strong Policy & Regulations score provides the legal foundation on which the proposed Public Data Act can build; and the gap analysis directly underpins the phased implementation roadmap in Sections 3.3.2 through 3.3.4.

3.2.2. World Bank Open Data Readiness Assessment (ODRA)

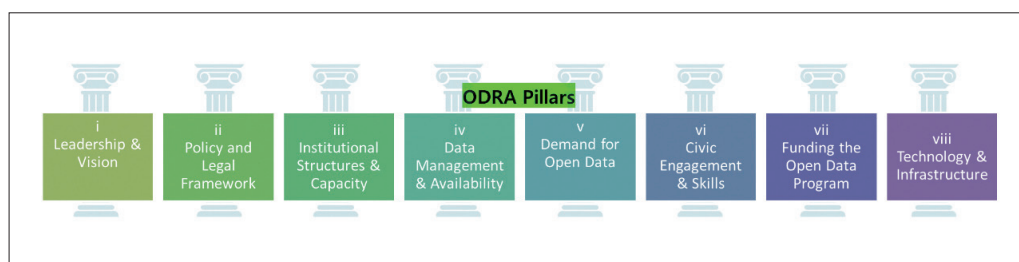
1) Background and Purpose

The Open Data Readiness Assessment (ODRA) is a methodological tool developed by the World Bank's Open Government Data Working Group. It was designed to conduct rapid, action-oriented diagnostics of a government's readiness to evaluate, design, and implement an Open Data initiative. First published in 2013 and revised to version 3.1 in 2015, the ODRA has been publicly applied in over 20 countries worldwide, including Uganda, Malaysia, Vietnam, and Bangladesh, though actual applications may extend further given that not all country assessments are publicly disclosed. As a diagnostic framework, it defines what to assess by focusing on the institutional, legal, technical, and societal pillars of a digital ecosystem, and provides:

- World Bank Open Data Readiness Assessment (ODRA)⁴
 - Defines what to assess, focusing on the institutional, legal, technical, and societal pillars of the Lao PDR's digital ecosystem.
 - A globally recognized framework to assess a government's readiness to implement open data and digital transformation initiatives.

⁴ World Bank, Open Data Readiness Assessment Toolkit, World Bank Group, 2015.

Figure 3 8 Pillars of World Bank Open Data Readiness Assessment (ODRA)



Source WB (2015)

The ODRA's core objective is to produce an evidence-based action plan identifying priority interventions a government should undertake to establish or strengthen its Open Data program. Unlike a purely technical infrastructure assessment, the ODRA takes a holistic view of the enabling environment, recognizing that legal frameworks, institutional capacities, and civic demand are as critical as technology in determining whether open data initiatives succeed or stall.

2) Methodology

The ODRA methodology assesses eight dimensions considered essential for the success of an Open Data program: (1) Senior Leadership, (2) Policy and Legal Framework, (3) Institutional Structures, Responsibilities and Capabilities, (4) Government Data Management Policies and Availability, (5) Demand for Open Data, (6) Civic Engagement and Capabilities, (7) Funding an Open Data Program, and (8) National Technology and Skills Infrastructure.

Each dimension is assessed through a combination of desk research, stakeholder interviews, and focus group discussions. Findings are rated on a three-tier scale (Green/Yellow/Red) reflecting the degree of readiness, and are supplemented by targeted questions designed to surface systemic barriers and practical constraints. The assessment culminates in an action plan that sequences recommended interventions by priority, feasibility, and institutional dependency.

3) Key Findings for Lao PDR

While the ODRA has not been formally conducted in Lao PDR, the World Bank carried out a closely related assessment—the Digital Government Readiness Assessment (DGRA)—as part of its 2022 report “Positioning the Lao PDR for a Digital Future.” The DGRA applies a similar multi-dimensional diagnostic lens to assess a government's readiness to deliver digital services, and its findings provide the most authoritative available evidence on Lao PDR's open data and digital government readiness landscape.

Table 12 Lao PDR Digital Government Readiness Assessment (DGRA) Key Findings (World Bank, 2022)

Area	Key Finding
Governance & Institutional Setting	Lack of government-wide coordination; need for intergovernmental steering committee led by MTC
Legal & Regulatory Framework	E-governance laws adopted (2017, 2018, 2021); gaps remain in data protection and cybersecurity
Digital Connectivity	Over 98% telecom coverage but under 50% mobile broadband subscription; rural gaps persist
Digital Payments	Cash remains dominant; mobile banking nascent; regulatory sandbox needed to spur innovation
Digital Skills	Significant civil servant digital skills gap; no government-wide digital skills masterplan
Platform Economy	Urban digital startups emerging; no national open data portal; siloed government systems
Digital Government	E-government apps deployed but fragmented; no enterprise architecture or data governance framework

Source World Bank (2022), “Positioning the Lao PDR for a Digital Future”

4) Implications for Lao PDR

The DGRA findings point to three strategic priorities for Lao PDR. First, the absence of a government-wide coordination mechanism underscores the need for an intergovernmental steering committee with cross-ministerial authority—a gap the proposed MTC-led governance architecture directly addresses. Second, the fragmented, siloed e-government systems confirmed by the DGRA reinforce the case for a Government-Wide Enterprise Architecture and a national data governance framework as foundational preconditions for any open data initiative. Third, the digital skills gap identified across line ministries highlights that infrastructure and legal reform alone are insufficient; sustained investment in civil servant capacity building is essential before data-sharing mandates can be operationally effective.

Together, the DMA and DGRA assessments provide complementary diagnostic perspectives: the DMA illuminates where Lao PDR stands on the maturity continuum of digital government transformation, while the DGRA identifies the specific enabling conditions that must be strengthened for open data and digital government initiatives to take root and generate public value. Both assessments converge on the same strategic conclusion: Lao PDR has established a credible legislative and institutional foundation, but translating that foundation into operational results requires sustained investment in institutional capacity, digital skills, and interoperable data infrastructure.

3.3. Action Plans for Digital Transformation in Lao PDR

3.3.1. Overview of Action Plans across Strategic Pillars

The action plan for Lao PDR's digital transformation is structured around eight core strategic pillars designed for synchronized and phased implementation.⁵

1) Leadership & Vision

While the Lao PDR has established a national vision for digital transformation, actual collaboration and monitoring across various ministries remain in the early stages. To overcome these coordination challenges, the government should establish a national coordination mechanism centered within the PMO. This centralized approach is necessary to ensure strategic alignment and effective policy coordination across the entire government.

2) Policy and Legal Framework

Although a general policy framework is currently in place, the legal alignment required specifically for effective data utilization remains insufficient. Strengthening the legal foundation necessitates the enactment of a specific act to promote data utilization. Such legislation should focus on enhancing data protection, technical standards, and interoperability while ensuring alignment with global standards.

3) Institutional Structures & Capacity

Relevant institutions for digital governance have already been established; however, their specific functions regarding data management require further clarification. Defining the distinct roles of various ministries in areas such as data management, security, and service integration is essential to fostering stronger cross-ministerial cooperation.

4) Data Management & Availability

The Ministry of Technology and Communications (MTC) is expected to play a leading role in supporting the integration, standardization, and cataloging of national data. To improve data access and sharing across the government, it is vital to apply metadata and data quality standards through the MTC's oversight.

⁵ Organisation for Economic Co-operation and Development (OECD), A Roadmap Toward a Common Framework for Measuring the Digital Economy, OECD Publishing, 2020.

5) Demand for Open Data

Lao PDR is seeing a steady increase in demand for public data from academia and civil society. To meet this demand and foster an innovation ecosystem, the government should build a dedicated open data portal and expand collaboration with developers and the private sector.

6) Civic Engagement & Skills

Developing human capital requires a comprehensive strategy that includes expanding national digital literacy programs for the general public. Furthermore, the government should focus on strengthening technical skills in high-demand areas such as data, cloud computing, and cybersecurity. Promoting digital awareness through active cooperation between the government, academia, and the media is also crucial for long-term success.

7) Funding the Open Data Program

Ensuring sustainable financial support for digital initiatives requires the introduction of blended finance models, such as combining resources from EDCF and ODA. Additionally, it is necessary to institutionalize long-term budgets dedicated to the continuous operation and maintenance (O&M) of digital systems.

8) Technology & Infrastructure

Infrastructure development should focus on accelerating the establishment of national data centers and integrating cloud platforms. Expanding broadband and 5G network connectivity is also a priority to bridge the digital gap between urban and rural areas.

3.3.2. Strategic Sequencing and Phased Implementation Roadmap

The eight strategic pillars outlined above are mutually reinforcing and cannot be implemented in isolation. International experience from comparable digital transformation programs in Vietnam, Cambodia, Bangladesh, and Rwanda indicates that successful national-scale digital transitions require a carefully sequenced, phased approach typically spanning seven to ten years. For Lao PDR, this implies dividing the implementation horizon into three distinct phases: a Foundation Phase (approximately Years 1–2), a Scaling Phase (approximately Years 3–5), and a Maturity Phase (approximately Years 6–10), though the precise duration of each phase may vary depending on implementation progress and resource availability. Each phase has distinct objectives, deliverables, and resource requirements, and each phase establishes the institutional, technical, and human capital prerequisites for the subsequent stage.

During the Foundation Phase, the central focus is on establishing the institutional

architecture and legal infrastructure necessary to support subsequent investments. This includes the enactment of a Public Data Act, the formal designation of a national coordination body within the Prime Minister's Office (PMO), the establishment of a National Digital Transformation Steering Committee with cross-ministerial representation, and the completion of baseline digital maturity assessments across all line ministries. Investments in foundational connectivity, particularly fiber backbone expansion to all provincial capitals and the rollout of 4G coverage to underserved districts, are among the key areas to be advanced during this phase. Human capital development should focus on training a meaningful cohort of senior civil servants in digital governance fundamentals, with the goal of cultivating internal change agents across ministries.

The Scaling Phase represents the period during which government services begin to migrate to digital channels at scale. Priority deliverables during this phase include the deployment of a national digital identity (Digital ID) platform, the launch of an integrated government cloud infrastructure (G-Cloud), the rollout of an interoperable data exchange platform akin to Estonia's X-Road, and the digitization of high-volume citizen-facing services such as civil registration, business licensing, tax filing, and social protection enrollment. The Scaling Phase also requires the establishment of dedicated cybersecurity capabilities, including a National Computer Emergency Response Team (CERT) and sectoral CERTs for finance, energy, and health. Human capital priorities expand to include mid-career retraining programs for the broader civil service and the launch of national digital literacy campaigns targeting general citizens, small business owners, and rural communities.

The Maturity Phase focuses on consolidation, advanced applications, and cross-border integration. By this stage, Lao PDR should be positioned to deploy advanced data analytics, artificial intelligence, and machine learning capabilities in priority sectors such as agriculture, tourism, health, and natural resource management. Cross-border initiatives, including participation in ASEAN data-sharing frameworks, harmonization with regional e-commerce protocols, and integration with Mekong sub-regional connectivity programs, become feasible during this phase. The Maturity Phase also represents the point at which digital transformation outcomes should become measurable in macroeconomic terms, including contributions to GDP growth, productivity, employment, and export competitiveness.

3.3.3. Cross-Pillar Dependencies and Critical Path Analysis

A critical path analysis of the eight strategic pillars reveals several non-negotiable dependencies that must be respected to avoid project failure. First, the Policy and Legal Framework pillar must precede meaningful progress on Data Management and

Demand for Open Data, since data sharing without clear legal authority exposes both public institutions and private participants to regulatory risk. Second, Technology and Infrastructure investments, particularly in connectivity and data centers, must precede or proceed in parallel with the Scaling Phase rollout of digital services, since service availability is meaningless if citizens lack reliable access. Third, Civic Engagement and Skills development must be initiated early, as the lead time for producing trained personnel exceeds the lead time for deploying technology systems. Fourth, Institutional Structures and Capacity must be clarified before significant ODA financing is mobilized, since donor partners require clear counterpart agencies, defined accountability chains, and demonstrated absorptive capacity. Fifth, Funding the Open Data Program requires upstream policy decisions about cost recovery, public-private partnerships, and the boundary between fee-based and free-tier data services. Sixth, Leadership and Vision require sustained political commitment from the highest levels of government, since digital transformation inherently disrupts existing bureaucratic interests, redistributes power within and across ministries, and creates winners and losers among incumbent stakeholders.

3.3.4. Resource Envelope and Investment Planning

In some comparable cases, comprehensive national digital transformation programs have required substantial public investment over multi-year horizons, supplemented by private sector co-investment of equivalent magnitude. For instance, Rwanda's four-year Digital Acceleration Project (2022–2026), co-financed by the World Bank and international development partners, mobilized USD 200 million focused on broadband access, digital public services, and digital inclusion—and this represents only one phase of a longer national transformation agenda. For Lao PDR, which faces a comparable set of structural challenges, the investment requirements over a ten-year horizon are likely to be significant, drawn from a combination of domestic budget allocations, concessional ODA, multilateral development bank lending, and innovative blended finance instruments. Critically, any such investment envelope must also account for the operating expenses required to maintain digital systems once deployed, which typically run at 15 to 20 percent of capital costs annually and must be institutionalized in recurring budget lines.

Bilateral development cooperation funds from partner countries, alongside multilateral institutions such as the World Bank, the Asian Development Bank, and the Asian Infrastructure Investment Bank (AIIB), have established programs supporting digital transformation in lower-middle-income countries and represent plausible sources of large-scale concessional finance for Lao PDR. Bilateral cooperation with technology-leading economies offers complementary support in the form of technical assistance,

expert secondments, training programs, and access to mature reference architectures. Coordination among these partners through a structured Digital Development Partner Group, convened by the PMO, is essential to avoid fragmentation, duplication, and donor-driven distortions of national priorities.

3.3.5. Institutional Foundation for Implementation: Public Data Governance and Legal Framework

Lao PDR's digital transformation is not merely a matter of administrative computerization or expansion of ICT infrastructure. Rather, it represents an institutional transition that restructures the overall operation of the State on a data-driven basis. At the core of this transition lies the question of how data held by the public sector should be managed, under what conditions it should be disclosed, and how such data can be connected to innovation across the private sector and society as a whole.

Lao PDR already has legal and institutional frameworks related to electronic transactions, cybersecurity, electronic records management, and personal data protection. In addition, specialized centers and organizations aimed at promoting data utilization have recently been established in a phased manner. However, these laws and institutions primarily focus on data protection, security, management, or technical support for data use. They do not sufficiently provide a dedicated legal framework for positioning public data as a national public asset and for systematically governing its disclosure, circulation, and reuse through a coherent public data openness policy.⁶ As a result, public data policy tends to rely on individual projects or ad hoc administrative initiatives, making it difficult to secure consistency and sustainability at the whole-of-government level.

In particular, the following structural challenges can be identified in the area of public data.

First, there is an absence of clear, nationwide policy principles and statutory standards governing public data disclosure. As a result, no common criteria exist regarding which categories of data held by public institutions should be disclosed and under what conditions. Disclosure decisions are therefore often left to the discretionary judgment or conservative interpretation of individual institutions, leading to inconsistencies whereby identical or similar types of data are disclosed by some institutions but withheld by others.

⁶ World Bank. (2015). Open Data Readiness Assessment Toolkit, World Bank Group; Organisation for Economic Co-operation and Development (OECD). (2022). Survey on Open Government Data 5.0, OECD Publishing.

Second, standardized procedures and operational frameworks for public data provision remain underdeveloped. Although organizations or centers tasked with supporting data utilization have been established, the actual public data that is disclosed varies significantly across institutions in terms of format, quality, update cycles, and metadata standards. Consequently, even where data is technically available, it is frequently difficult to combine, analyze, or reuse for private-sector services and innovation.

Third, the absence of clear rules regarding the permissibility of commercial use and the allocation of legal responsibility creates legal uncertainty for private enterprises and startups, discouraging their active participation in public data utilization.

Fourth, concerns related to personal data protection, state secrets, and national security are often applied without clear statutory criteria, increasing the risk that data which could legitimately be disclosed is nevertheless subject to excessive non-disclosure practices.

To address these challenges, it is neither necessary nor desirable to replace or consolidate existing data-related legislation. Instead, a more appropriate approach is to enact a general public data law dedicated to the provision, management, and reuse of public data, thereby filling the existing legislative gap. Such a Public Data Act should move beyond the current system that relies on discretionary disclosure by public institutions and establish a practical and enforceable legal foundation by clearly defining the rights, obligations, procedures, and responsibilities governing public data openness.

3.3.6. Comparative Legal Frameworks for Public Data Governance

Designing a Public Data Act for Lao PDR benefits from comparative analysis of mature legal frameworks in jurisdictions that have successfully institutionalized open data and data reuse over the past two decades. Five reference frameworks are particularly instructive: the Republic of Korea's Act on the Promotion of the Provision and Use of Public Data (2013), the European Union's Open Data Directive (Directive 2019/1024), the United Kingdom's Re-use of Public Sector Information Regulations (2015), Singapore's Public Sector (Governance) Act (2018), and Japan's Basic Act on the Advancement of Public and Private Sector Data Utilization (2016). Each framework reflects distinct governance traditions, but all share common architectural elements that should inform the Lao PDR draft.

First, all reference frameworks establish a default presumption in favor of disclosure, reversing the historical default of confidentiality that characterized pre-digital administrative law. Under this default, public data is presumed to be open unless an explicit, statutorily defined exception applies. The exceptions are typically narrow and exhaustive, encompassing personal data protection, commercial confidentiality, national

security, ongoing law enforcement investigations, and certain forms of pre-decisional deliberative material. The shift from a discretionary disclosure regime to a default-open regime is the single most consequential design choice in any Public Data Act, since it shifts the burden of proof from data requesters to data holders.

Second, all reference frameworks specify minimum technical standards for the format, quality, and timeliness of disclosed data. The Korean framework, for example, mandates that public data be released in machine-readable, non-proprietary formats wherever technically feasible, with metadata adhering to standardized schemas to enable cross-dataset interoperability. The EU Open Data Directive goes further, establishing a category of high-value datasets (HVDs) that must be made available free of charge, in machine-readable formats, via APIs, and under open licenses. For Lao PDR, defining a tiered approach that distinguishes basic disclosure obligations from enhanced obligations for HVDs offers a pragmatic path that reflects current capacity constraints while signaling forward direction.

Third, all reference frameworks include institutional arrangements for oversight, dispute resolution, and continuous improvement. Korea's Public Data Strategy Committee, chaired by the Prime Minister and including ministerial and non-governmental members, provides high-level policy coordination. Korea also operates a Public Data Mediation Committee that adjudicates disputes between requesters and data-holding institutions, providing an alternative to formal litigation. Similar oversight bodies exist in the UK, where the Information Commissioner's Office (ICO) has statutory authority over both data protection and access to information matters. For Lao PDR, lodging oversight authority in a single, independent body with clear statutory mandate avoids the fragmentation that has hampered implementation in other emerging economies.

Fourth, all reference frameworks address the commercial use of public data, recognizing that the economic value of open data is substantially realized through downstream private sector applications. Modern frameworks typically permit unrestricted commercial reuse under standardized open licenses (such as Creative Commons CC-BY 4.0 or Open Government License), subject only to attribution requirements and prohibitions on misrepresentation. This permissive approach is essential to enable startups, established firms, and academic researchers to build value-added services on public data without facing case-by-case licensing negotiations that would otherwise impose prohibitive transaction costs.

3.3.7. Recommended Architecture of the Lao PDR Public Data Act

The comparative analysis above points to a set of foundational principles that any effective Public Data Act must embody. Translating these principles into a workable

legislative framework for Lao PDR, however, requires careful attention to the country's existing legal environment—in particular, the relationship between public data openness and personal data protection, which presents one of the most consequential design challenges and is examined in the following section. The detailed legislative design of the Act, including its institutional arrangements and implementation sequencing, is addressed in Chapter 4.

3.3.8. Harmonization with the Personal Data Protection Regime

The relationship between the Public Data Act and the personal data protection regime is one of the most consequential design questions, since unresolved tensions in this area have undermined open data implementation in numerous comparable jurisdictions. The fundamental tension is that the Public Data Act emphasizes disclosure while the personal data protection regime emphasizes restriction. Resolving this tension requires explicit statutory recognition that personal data, by definition, falls outside the scope of mandatory open data disclosure obligations, while simultaneously establishing safe harbors for the publication of anonymized, aggregated, or pseudonymized data derived from personal data sources.

Best practice in this area, derived from the European Union's General Data Protection Regulation (GDPR) and its interaction with the Open Data Directive, involves three layered safeguards. First, anonymization standards must be defined with technical rigor, recognizing that traditional anonymization techniques are increasingly vulnerable to re-identification attacks when combined with auxiliary data sources. Second, statistical disclosure control techniques, including k-anonymity, l-diversity, and differential privacy, should be standardized and made available as shared infrastructure to public institutions. Third, ongoing monitoring of re-identification risks, supported by independent technical audits, ensures that anonymization practices keep pace with evolving analytical capabilities.

For Lao PDR, the practical implication is that the Public Data Act and the Personal Data Protection Law must be drafted, enacted, and implemented in close coordination, with shared institutional infrastructure and harmonized administrative procedures. International experience suggests different approaches to managing this coordination: some jurisdictions, such as the United Kingdom and Australia, have consolidated oversight authority within a single body, while others, such as Germany and Korea, rely on mandatory consultation procedures between separate regulators. The appropriate model for Lao PDR will depend on the broader institutional design choices addressed in Chapter 4.

3.4. Case Study in Korea

The Korean case studies demonstrate how diverse sectors—including medical, welfare, manufacturing, and retail—leverage data to enhance operational efficiency, solve social problems, and create new economic value. The following case studies are based on Korea's public data and data utilization policy framework.⁷

3.4.1. Sector-Specific AI and Data Use Cases

Korea has implemented advanced data-driven solutions across various industries to maximize data usability and service quality.

Table 13 AI and Data Use Case of Korea by Sector

Sector	Data	Use case
Medical Sector	• Clinical data related to elderly sarcopenia (muscle mass, physical function, medical measurements) • Health questionnaire/lifestyle survey data • Electronic Health Records (EHR) • Large elderly population datasets for AI model training	Development of a medical questionnaire platform for comprehensive sarcopenia management among the elderly In response to the growing need for technologies that help medically vulnerable elderly individuals manage sarcopenia, the company developed an AI-based prediction model and processed large datasets to maximize data usability.
Welfare Sector	• Public meal-card transaction data • Private merchant transaction data • Child welfare service usage records • Real-time payment and authorization data	Enhancement of a B2C platform through integration and processing of public and private meal-card data for children Developed an integrated platform by preprocessing and combining public and private merchant data to improve real-time updates and user-centered welfare services for vulnerable groups.

⁷ Republic of Korea. (2013). Act on the Promotion of the Provision and Use of Public Data; Republic of Korea. (2020). Act on the Promotion of Data-Based Administration; Republic of Korea. (2021). Framework Act on the Promotion of the Data Industry and the Utilization of Data.

Sector	Data	Use case
Culture Sector	• 3D motion capture data (MoCap) • Video/image-based motion extraction data • Multimodal datasets (3D skeletons, keypoints, pose sequences)	Generative AI-based 3D motion production dataset creation Addressed inefficiencies in 3D content production by developing a multimodal AI-based motion generation model capable of creating high-quality 3D motion data applicable to diverse use cases.
Manufacturing Sector	• Warehouse image and video data from drone cameras • Object recognition and labeling data (boxes, pallets, inventory units) • Warehouse Management System (WMS) inventory data • Spatial/positional tracking data for navigation	Autonomous drone-based inventory inspection solution for logistics warehouses Developed a fully automated inventory inspection solution utilizing vision-based autonomous drones that operate without additional infrastructure (markers, beacons), pre-mapping, or controller personnel, even in large indoor warehouses with weak GPS signals.

3.4.2. Problem-Solving Through Big Data Analysis

Specific analysis methods in Korea have led to measurable improvements in revenue and resource management.

1) Case 1. Manufacturing Sector: Predicting the Operating Status of Swimming Pool Filters

This case highlights how data-driven predictive maintenance can lead to significant cost savings in industrial operations.

- Issue: Improper timing of filter detachment (backwashing) operations leads to increased water treatment costs, making precise management of the detachment cycle essential.
- Analysis Method:
 - The company analyzed the distribution of detachment operation cycles for the filters.
 - They examined correlations between the detachment cycles and various swimming pool water-quality management variables.
 - Machine-learning models were implemented to predict the optimal timing for detachment.

- Outcome:
 - Generated approximately KRW 30 million in additional annual revenue.
 - Increased the detachment cycle by about 15%, resulting in a 5–15% reduction in annual water consumption.

Figure 4 Predicting the Operating Status of Swimming Pool Filters



2) Case 2. Manufacturing Sector: Customized Automatic Door System

This case demonstrates how data analytics can drive market diversification and international expansion.

- Issue: To expand into new markets, the company needed to analyze entrance conditions to design customized environments based on specific facility characteristics.
- Analysis Method:
 - Conducted a correlation analysis among different entrance-condition variables.
 - Performed cluster analysis to group entrance conditions with similar installation environments.
- Outcome:
 - Developed successful product enhancement strategies.
 - Filed six domestic and four international patents based on the findings.
 - Signed supply contracts with two U.S. companies, leading to approximately 15% sales growth.

Figure 5 Customized Automatic Door System

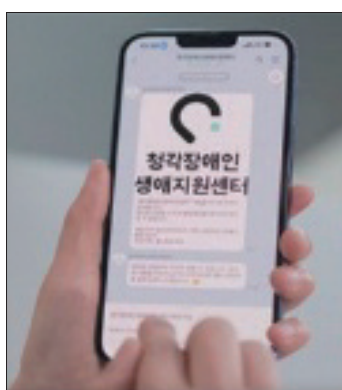


3) Case 3. Education/Service Sector: Voice Data-Based Learning Content Creation

This example showcases the digitalization of services to improve operational efficiency and content quality.

- Issue: The organization sought to convert voice data into rehabilitation content, utilizing customized client-specific data while overcoming the technical hurdles of non-face-to-face services.
- Analysis Method:
 - Utilized Speech-to-Text (STT) technology to convert voice data into text.
 - Segmented the text into auditory rehabilitation units and structured them into learning datasets.
 - Extracted key topics through comprehensive text analysis.
- Outcome:
 - Successfully automated tasks that were previously performed manually.
 - Built specialized pronunciation-correction datasets.
 - Reduced total content production time by more than 80%.

Figure 6 Voice Data-Based Learning Content Creation



3.4.3. Expanding the MyData Ecosystem

Korea's MyData initiative enables stable and trusted data distribution across the public and private sectors, empowering users to manage their own information.⁸

Table 14 Korea's MyData Data Case

Corporate Sector Korea International Trade Statistics Promotion Institute 	Digital Transformation of Export/Import Operations: “Trade MyData Service” • Digitalized the entire lifecycle of export/import performance certificates, including application, issuance, and distribution, thereby enhancing operational efficiency for companies and preventing document forgery or tampering. • Supports stable and trusted data distribution; currently used by 11,290 companies, including Korea Fisheries Trade Association.
Public Sector Gyeonggi Province 	“Personalized AI Care Service” for Solitary-Death Prevention • Detects risks of solitary death in real time using electricity, telecommunications, and water-usage data. • Provides stage-based care services such as AI safety calls and visits by welfare managers based on risk level. • Demonstrates how MyData can be applied to solve social problems.
Real Estate Sector SolidEdu System 	“Safe Rental Transaction Service” to Prevent Rental Fraud • Allows users to easily manage essential rental-transaction information such as credit scores and tax payment certificates. • Provides a “rental safety score” for landlords and tenants, enabling safe and transparent rental transactions.
Healthcare Sector EvidNet 	“Medical MyData Service” – Convenient Healthcare Management Through a Single App • Standardizes and integrates fragmented medical data from mid- and large-sized hospitals. • Provides an all-in-one healthcare service including AI exercise coaching and simplified insurance claims. • Represents a leading MyData use case in the healthcare sector.
Retail Sector CreditData 	“SME Management Support Service” for Precise Sales Management • Securely collects and analyzes payment and store information using standard APIs. • Supports small business owners by providing visitor analytics, promotional benefit guidance, and insights that increase sales and reduce costs. • Used by approximately 1.7 million small business owners.

⁸ Republic of Korea. (2021), Framework Act on the Promotion of the Data Industry and the Utilization of Data.

3.4.4. Institutional Architecture Behind Korea's Data Use Cases

The Korean sectoral use cases described above are not the product of isolated entrepreneurial initiative but rather the outcome of a deliberately constructed institutional architecture spanning over a decade of policy investment. Three institutional pillars have proven decisive. First, the Public Data Strategy Committee, established under the 2013 Act on the Promotion of the Provision and Use of Public Data, provides high-level cross-ministerial coordination and dispute resolution authority directly under the Prime Minister. Second, the National Information Society Agency (NIA), as the technical implementing agency, operates the integrated public data portal (data.go.kr), which currently hosts more than 78,000 datasets and processes over one billion API calls annually. Third, the Korea Data Agency (K-Data), reorganized from earlier predecessor bodies in 2020, focuses specifically on stimulating private sector data utilization through industry support programs, voucher schemes, and public-private data sharing initiatives.

This three-pillar architecture has proven effective because each institution occupies a distinct functional niche. The Strategy Committee handles strategic direction and inter-ministerial conflict resolution, the NIA handles operational data infrastructure and citizen-facing services, and K-Data handles industrial promotion and ecosystem development. The boundaries are clearly defined in statute and operational protocols, minimizing duplication and turf conflicts that have plagued similar arrangements in other jurisdictions. For Lao PDR, considering an analogous tripartite arrangement, calibrated to current institutional capacity, would help avoid the common error of concentrating all data-related functions in a single agency that becomes a bottleneck and single point of failure.

1) Data Voucher Program

One of the most distinctive elements of Korea's data policy toolkit is the Data Voucher Program, launched in 2019 by the Ministry of Science and ICT and operated by K-Data. The program provides subsidies of up to KRW 70 million per recipient to small and medium enterprises (SMEs), startups, and academic researchers for the purchase, processing, or AI-related labeling of data. Through 2024, the program has supported more than 12,000 enterprises and disbursed over KRW 460 billion in cumulative subsidies. Independent evaluations indicate that participating enterprises reported average revenue increases of 19 percent and productivity gains of 24 percent in data-intensive operations, with measurable spillover effects in the broader data services market.

The Data Voucher Program exemplifies a demand-side approach to data ecosystem development that complements traditional supply-side investments in open data infrastructure. By subsidizing the cost of data acquisition and processing for SMEs and startups, the program lowers the barrier to data-driven innovation for actors who would

otherwise be priced out of the data services market. This approach is particularly relevant for emerging economies, where capital constraints, rather than data availability, often represent the binding constraint on private sector data utilization. For Lao PDR, a scaled-down version of this program, potentially funded through ODA channels and targeted at sectors with strong development relevance such as agriculture, health, and tourism, could catalyze early data-driven innovation while building demonstration cases.

2) K-Data Trust Framework

Building on lessons from earlier MyData implementations in financial services, Korea has progressively developed a comprehensive trust framework that addresses the technical, legal, and behavioral dimensions of data circulation. The framework rests on three core mechanisms: certified data brokers (data trustees) who operate under statutory fiduciary obligations, standardized data exchange protocols based on open APIs and consent management, and graduated identity verification levels calibrated to data sensitivity. This architecture allows individuals and businesses to authorize data flows across institutional boundaries with cryptographic assurance and granular control.

The introduction of the certified data broker license in 2022 represented a significant institutional innovation. Brokers operate under fiduciary duties analogous to those imposed on financial advisors, including duties of loyalty, care, and disclosure. They are subject to mandatory technical audits, capital adequacy requirements, and ongoing supervisory oversight. As of late 2024, fifteen entities have received broker licenses, with concentrations in healthcare, finance, and retail sectors. Early operational data suggests that broker-mediated transactions exhibit lower fraud rates and higher consumer trust scores than direct peer-to-peer data transfers, validating the institutional design hypothesis that intermediation, when properly regulated, generates net welfare gains.

3.4.5. Lessons for Lao PDR from the Korean Experience

The Korean experience offers several transferable lessons for Lao PDR, but transferability requires careful adaptation rather than literal replication. Korea's policy successes were shaped by initial conditions, including high digital literacy, dense urban populations, mature financial infrastructure, and a robust private technology sector, that differ substantially from those of Lao PDR. At the same time, Korea's failures, particularly in the early phases of its open data initiative when implementation lagged behind ambitious legislative goals, contain equally instructive lessons about the importance of phased rollout and capacity building.

First, legislative scope must be calibrated to implementation capacity. Korea's 2013 Public Data Act initially imposed disclosure obligations that exceeded the technical

capacity of many public institutions, leading to widespread non-compliance and erosion of statutory authority during the first three years of operation. Subsequent amendments and a phased compliance schedule eventually restored credibility, but the early experience demonstrates the cost of legislative overreach. For Lao PDR, a more gradualist approach, with explicit phased compliance obligations differentiated by institutional readiness, is likely to be more effective.

Second, institutional clarity outweighs institutional sophistication. Korea's experience illustrates both the value and the difficulty of achieving this clarity. In the years preceding the 2013 Public Data Act, responsibility for data-related functions was fragmented across multiple ministries with overlapping mandates and divergent approaches, making it difficult to integrate public and private data across institutionally divided jurisdictions (Carnegie Endowment for International Peace, 2022). The consolidation of functions into the three-pillar architecture (Strategy Committee, NIA, and K-Data) represented a deliberate effort to resolve this fragmentation by assigning distinct functional niches to each body. Even so, the OECD's 2025 Digital Government Review of Korea noted that scope remains for further streamlining coordination among bodies with overlapping mandates, underscoring that institutional clarity is an ongoing governance challenge rather than a problem solved once (OECD, 2025). For Lao PDR, the lesson is that replicating the architecture without replicating the clarity of functional boundaries would generate the worst of both worlds: high coordination costs without commensurate functional benefits. An initial architecture of two clearly defined institutions, expandable as capacity develops, is preferable to premature institutional proliferation.

Third, demand-side investments are as important as supply-side investments. Korea's Data Voucher Program, K-Startup support programs, and university-industry collaboration grants generated downstream demand for the open data and MyData infrastructure. Without parallel demand-side stimulation, public investments in data infrastructure risk becoming stranded assets. For Lao PDR, even modest demand-side programs targeted at priority sectors can generate disproportionate ecosystem effects.

Fourth, citizen trust is the foundation of data circulation. Korea's MyData program succeeded because it was built on a foundation of pre-existing trust in public institutions, financial regulators, and digital infrastructure. Where this trust is weaker, as in many emerging economies, additional investments in transparency, consumer protection, and grievance mechanisms are necessary to build the trust capital required for data circulation. For Lao PDR, this implies investing not only in technical data infrastructure but also in the ombudsman, consumer protection, and judicial mechanisms that backstop the trust framework.

3.4.6. Proposed Pilot Initiatives for Lao PDR

Drawing on the comparative analysis above, four pilot initiatives are proposed for Lao PDR during the Foundation and early Scaling phases. Each pilot is offered as an illustrative starting point rather than a definitive prescription, reflecting the diagnostic evidence gathered above while recognizing that final design choices must be shaped by ground-level realities and institutional priorities in Lao PDR. The pilots are sequenced to respect dependencies and to minimize early-stage execution risk.

Pilot 1: Agricultural Open Data Portal. The agricultural sector accounts for approximately 16 percent of GDP and employs approximately 70 percent of the workforce in Lao PDR (World Bank, 2023; ILO, 2023), making it both economically critical and a natural demonstration domain for data-driven services. Notably, a Digital Farmer Registry has already been piloted under the Partnerships for Irrigation and Commercialisation of Smallholder Agriculture (PICSA) project and is currently being scaled across additional Ministry of Agriculture and Forestry programs, providing an existing institutional foundation on which a broader open data portal could build. The pilot would expand on this foundation to establish a sectoral open data portal hosted by the Ministry of Agriculture and Forestry, providing access to weather data, soil maps, market prices, extension service materials, and pest and disease alerts. Implementation would proceed in partnership with FAO and bilateral partners with established agricultural data programs, including Korea's Rural Development Administration and Japan's Ministry of Agriculture, Forestry and Fisheries.

Pilot 2: Citizen Service Digital ID. Building on the digital ID card system that began nationwide rollout in December 2025, though still in its early stages of implementation and subject to the operational uncertainties that typically accompany new national infrastructure, the pilot would deploy a digital identity credential allowing citizens to authenticate themselves to government services online. Initial use cases would focus on high-volume, low-risk services including civil registration certificates, education enrollment, and health center registration. The pilot would deliberately exclude high-stakes financial services in the first phase to minimize systemic risk while building operational experience.

Pilot 3: Customs and Trade Single Window. While Lao PDR's participation in the ASEAN Single Window remains partial—with full customs declaration data exchange only recently achieved as of mid-2025—this pilot would build incrementally on existing e-Form D connectivity to progressively integrate customs declarations, import and export licenses, sanitary and phytosanitary certificates, and payment processing into a unified digital interface. This pilot offers high-visibility economic benefits and aligns with regional integration commitments under the ASEAN Economic Community framework, though its complexity and cross-ministerial coordination requirements mean that careful

sequencing and realistic timelines will be essential to implementation success.

Pilot 4: Health Sector Electronic Health Records (EHR). This pilot is explicitly sequenced to follow the stabilization of Pilot 2, as reliable digital identity infrastructure is a prerequisite for patient authentication within any EHR system. Once the digital ID system has demonstrated sufficient operational stability, the pilot would deploy a basic EHR system at a selected number of referral hospitals and primary health centers, focusing on maternal and child health, communicable diseases, and chronic disease management. Implementation would leverage WHO standards (HL7 FHIR, ICD-11) to ensure interoperability with future national systems and regional health information exchanges. A critical implementation constraint to be addressed upfront is that approximately 60 percent of health centers in Lao PDR experience interruptions in power supply (World Bank, 2024), which would need to be mitigated through backup power solutions or selective site prioritization before EHR deployment can be considered viable.

3.4.7. Comparative International Case Studies

Beyond the Korean experience, four additional country case studies offer distinct lessons for Lao PDR's digital transformation strategy. These cases were selected to capture diversity along three dimensions: stage of economic development (from advanced economies to peer lower-middle-income economies), governance tradition (from parliamentary democracies to single-party states), and digital strategy (from market-led to state-led approaches). The four cases are Singapore, Estonia, Vietnam, and India.

1) Singapore: Smart Nation as Industrial Policy

Singapore's Smart Nation initiative, launched in 2014 by Prime Minister Lee Hsien Loong and refreshed as Smart Nation 2.0 in October 2024 under Prime Minister Lawrence Wong, represents one of the most comprehensive and best-resourced national digital transformation programs globally. Singapore's annual government ICT spending reached approximately USD 2.4 billion in 2023, and tech spending across the economy is forecast at USD 19 billion in 2025. Smart Nation has delivered tangible outcomes including over 95 percent nationwide 5G coverage achieved in 2022, near-universal digital identity (Singpass) coverage, and the digitization of substantially all citizen-facing government services through the LifeSG and Business Grants Portal platforms. Singapore consistently ranks first or second globally on the IMD World Digital Competitiveness Ranking, the United Nations E-Government Development Index, and the World Bank's GovTech Maturity Index.

Three structural features distinguish Singapore's approach. First, the institutional architecture concentrates authority and resources in a small number of well-coordinated

agencies: the Smart Nation and Digital Government Office (SNDGO) within the Prime Minister's Office, the Government Technology Agency (GovTech) as the technical implementing agency, and the Infocomm Media Development Authority (IMDA) as the regulator and ecosystem enabler. The clarity and concentration of this architecture, while difficult to replicate in larger or more decentralized polities, illustrates the importance of decisive leadership and unified accountability.

Second, Singapore has consistently treated digital infrastructure as industrial policy rather than as a cost center. The Tech Pass and ONE Pass schemes attract international digital talent through favorable immigration treatment. The Tech.Pass Tech.Talent Assembly convenes industry leaders to identify skill gaps and shape national curricula. The Pinnacle Programme provides accelerated career paths for high-potential public sector technologists. The collective effect is to position Singapore as a regional hub for digital services, generating spillovers across financial services, logistics, and biotechnology.

Third, Singapore has invested heavily in cybersecurity as a strategic enabler rather than an afterthought. The Cyber Security Agency (CSA), established in 2015, operates a tiered framework that distinguishes critical information infrastructure (CII) from non-CII systems and imposes graduated obligations accordingly. The SG Cyber Safe program provides cybersecurity assistance to SMEs at subsidized rates, addressing the systemic vulnerability that arises from supply chain dependencies. For Lao PDR, while the resource scale is incomparable, the structural lessons—institutional concentration, treating digital as industrial policy, and prioritizing cybersecurity as a strategic enabler—remain transferable.

2) Estonia: Digital-by-Default in a Small State

Estonia's e-Estonia framework is widely regarded as the most ambitious example of digital-by-default governance among small states. Beginning with the Tiger Leap initiative in 1996, which deployed computers to all schools, Estonia has progressively digitized substantially all government services, with 99 percent of state services now available online and only marriage, divorce, and real estate transactions requiring physical presence. The X-Road data exchange platform, launched in 2001, currently mediates over 2 billion data transactions annually across more than 900 organizations including all state agencies, banks, and major utilities.

Three architectural choices have proven foundational to Estonia's success. First, the digital identity infrastructure (e-ID) is mandatory for all residents and serves as the universal authentication credential across all government and most private sector services. The combination of mandatory adoption, strong cryptographic security, and universal applicability has eliminated the chicken-and-egg coordination problem that has frustrated digital ID adoption in many comparable jurisdictions. Second, the data-

once principle, codified in legislation, prohibits government agencies from requesting information from citizens that is already held elsewhere in government, creating strong administrative incentives for inter-agency data sharing.

Third, the X-Road platform implements a federated architecture rather than a centralized data warehouse. Each agency retains ownership and control of its data while exposing standardized APIs for authorized cross-agency access. This federated approach respects existing institutional boundaries and avoids the political resistance that centralized data architectures typically encounter. For Lao PDR, the X-Road model offers a particularly attractive reference architecture, given its open-source availability, its proven scalability across diverse institutional contexts, and its successful adoption in Finland, Iceland, Japan, and several other jurisdictions.

Estonia's experience also illustrates important risks. The 2007 cyberattacks, which targeted Estonian government, banking, and media infrastructure, exposed the systemic vulnerabilities of digital-first governance models and prompted significant subsequent investments in cybersecurity, including the establishment of the NATO Cooperative Cyber Defence Centre of Excellence in Tallinn. The 2017 ID card cryptographic vulnerability, affecting approximately 750,000 cards, similarly highlighted the importance of crypto-agility and incident response capacity. For Lao PDR, these episodes underline the inseparability of digital transformation from cybersecurity capacity-building.

3) Vietnam: Catching Up Through State-Led Digital Strategy

Vietnam's National Digital Transformation Programme to 2025, with orientations to 2030, approved in June 2020, represents the most directly comparable peer reference for Lao PDR. As a fellow ASEAN member with broadly similar economic structure (although Vietnam's GDP per capita is approximately 4 times that of Lao PDR), comparable governance traditions, and shared regional commitments, Vietnam's experience offers particularly relevant lessons. The Programme established three primary pillars (digital government, digital economy, and digital society) with 25 specific targets spanning broadband penetration, digital identity coverage, e-commerce growth, and industry digitization.

Implementation outcomes through 2024 have been substantial. The Vietnamese digital economy reached an estimated USD 36 billion in 2024, equivalent to approximately 18.3 percent of GDP, approaching the government's 20 percent target for 2025 (Ministry of Information and Communications, 2025). The VNeID national digital identity platform, launched in 2022, had activated credentials for over 55.25 million citizens by end-2024, surpassing the government's initial target of 40 million. The National Public Services Portal hosts over 4,500 services with cumulative transaction volumes exceeding 2 billion. Mobile broadband penetration exceeds 85 percent of the adult population, and 5G commercial services were launched in 2024 by all three major operators.

Three lessons from Vietnam are particularly transferable. First, the role of dedicated

political leadership has been decisive. The establishment of the National Committee on Digital Transformation, chaired by the Prime Minister with Vice Chairs at the Deputy Prime Minister level, has provided the political authority necessary to overcome inter-ministerial resistance and to maintain implementation momentum. Second, the staged approach to identity infrastructure (CCCD physical card → CCCD chip card → VNeID digital credential) has progressively built administrative and citizen familiarity with each successive layer, reducing rollout friction at each stage.

Third, Vietnam has effectively leveraged competition among major domestic technology firms (Viettel, VNPT, FPT) as an industrial policy instrument. Government contracts are typically awarded competitively, which generates downward pressure on procurement costs while building domestic technology capability. For Lao PDR, while the domestic technology sector is much smaller, similar principles can be applied through competitive procurement involving regional partners and the structuring of strategic partnerships that build domestic absorptive capacity.

4) India: Digital Public Infrastructure at Population Scale

India's digital public infrastructure (DPI) approach, often referred to as the India Stack, represents the most ambitious population-scale digital infrastructure program globally. Built on three foundational layers—identity (Aadhaar), payments (Unified Payments Interface, UPI), and data sharing (DigiLocker, Account Aggregator framework)—the India Stack has delivered transformative outcomes including the issuance of biometric digital IDs to over 1.4 billion individuals by end-2024, the processing of approximately 18.4 billion UPI transactions monthly as of late 2024 (more than the combined transaction volume of Visa and Mastercard globally), and the digitization of substantially all financial inclusion programs.

Two design principles distinguish the India Stack. First, modular open-source architecture: each layer is built as a public good infrastructure that any qualified actor can build upon, rather than as a closed proprietary system. This design choice has generated an ecosystem of thousands of fintech startups, banks, and government agencies building on the same foundational rails, with network effects that compound over time. Second, mandatory interoperability standards: all participants are required to adhere to common technical and operational standards, eliminating fragmentation and enabling seamless cross-provider experiences for end users.

The India experience also illustrates the political economy challenges of population-scale DPI. Aadhaar adoption was contested through Supreme Court litigation regarding privacy implications, ultimately resolved through the 2018 Puttaswamy judgment that affirmed the constitutional right to privacy and circumscribed permissible Aadhaar uses. The 2019 Personal Data Protection Bill, repeatedly revised, was eventually enacted as the Digital Personal Data Protection Act 2023, illustrating the difficulty of legislating data

protection in dynamic political and technological environments. For Lao PDR, the India experience underscores the importance of grounding digital infrastructure in robust legal frameworks from the outset, rather than retrofitting protections after deployment.

5) Synthesizing Lessons Across Country Cases

Synthesizing across the Korean, Singaporean, Estonian, Vietnamese, and Indian cases, six common themes emerge that are particularly relevant for Lao PDR. First, and most directly applicable to Lao PDR's current juncture, legal and regulatory frameworks must be designed and enacted in parallel with technical infrastructure, not after deployment. Retroactive legal frameworks generate legitimacy challenges, create enforcement gaps, and undermine citizen trust in ways that are difficult to reverse once digital systems are embedded in daily life. India's experience is instructive: Aadhaar was deployed at population scale before adequate data protection legislation was in place, triggering Supreme Court litigation and years of legal uncertainty that complicated the program's expansion. Estonia, by contrast, codified the data-once principle and mandatory e-ID adoption in legislation from the outset, providing clear legal authority for each subsequent layer of digital infrastructure. For Lao PDR, the practical implication is unambiguous: the proposed Public Data Act, the harmonization of the Personal Data Protection Law, and the development of cybersecurity legislation must proceed in tandem with infrastructure investment rather than sequentially after deployment. The window to establish this legal foundation is now, while the digital ID system, the G-Cloud architecture, and the open data portal are still in their early stages.

Second, sustained political leadership at the highest levels is universally identified as a precondition for success. Without explicit, ongoing political commitment from the head of government, digital transformation programs lose momentum during inevitable implementation challenges. Third, institutional clarity and concentration of authority outperform diffuse arrangements, particularly during the foundation phase when difficult prioritization choices must be made.

Fourth, identity infrastructure is foundational and should be prioritized in early phases. Without a robust digital identity system, downstream digital services cannot achieve scale or trust. Fifth, the distinction between supply-side (infrastructure provision) and demand-side (utilization stimulation) interventions is critical, with the most successful programs investing heavily in both. Sixth, cybersecurity must be treated as a strategic enabler rather than a compliance burden, with investments scaled in proportion to the criticality of the infrastructure being protected.

For Lao PDR, these six lessons collectively point toward a sequenced, legally grounded, and institutionally clear approach to digital transformation—one that treats legal architecture not as a constraint on speed but as the foundation that makes speed sustainable.

3.5. From Abundance to Sovereignty—Data and AI

The global data environment has entered a structural transition. Data is no longer a passive byproduct of digital activity; it has become an operational input to economic coordination, AI development, and state capacity. However, the accumulation paradigm that defined the “big data” era is increasingly constrained by physical limits (energy and infrastructure), technical bottlenecks (data quality and AI scaling), and legal frictions (copyright, privacy, and cross-border restrictions). As a result, strategic advantage is shifting from the ability to collect data at scale to the ability to govern, legitimate, and reuse data at scale.

3.5.1. The Data-Development Feedback Loop and Dual-Use Risk Management

Data production and collection now occur at industrial intensity across individuals, firms, and governments, encompassing online behavior, operational processes, and public administration. This expansion produces two simultaneous effects. On the one hand, it enhances transparency and enables more evidence-based policymaking and institutional accountability. On the other hand, it deepens the accumulation of individual-level information, expanding the scope for profiling, monitoring, and control.

As data flows into analytics and processing, value is generated through reuse by a wide range of actors, including civil society, academia, governments, international organizations, and private firms. In well-functioning data ecosystems, reuse allows data to circulate across institutional boundaries, producing cumulative social and economic returns.

At scale, however, the same feedback loop generates systemic risks. Data can be repurposed for political surveillance, while concentrated access to large datasets can reinforce market dominance, widen inequality, and embed discrimination into automated decision systems. Expanding data infrastructures also create new vectors for cybercrime and illicit activity. Managing this dual-use character of data, therefore, becomes a central governance challenge: enabling reuse that supports innovation and public value, while constraining uses that undermine rights, fairness, and security.

Quantifying dual-use risks in data systems requires a structured taxonomy that distinguishes between primary uses, authorized secondary uses, and unauthorized or harmful repurposings. The OECD Going Digital project has proposed a risk-differentiated approach to data governance that distinguishes between data sensitivity and the authorization status of data use, calling for governance controls calibrated to each

combination of risk and access condition (OECD, 2022). This framework maps onto a four-quadrant risk surface defined by two dimensions: data sensitivity (low to high) and use authorization (authorized to unauthorized). Quadrant I (low sensitivity, authorized) represents the routine open data use case, where reuse generates net positive social value with minimal risk. Quadrant II (low sensitivity, unauthorized) covers nuisance violations such as terms-of-service breaches, where harms are real but contained. Quadrant III (high sensitivity, authorized) covers sensitive but legitimate uses such as public health surveillance and law enforcement intelligence, where harms can occur through over-collection or mission creep. Quadrant IV (high sensitivity, unauthorized) covers the most serious harms, including identity theft, political surveillance, and state-sponsored espionage.

Effective governance requires differentiated controls calibrated to each quadrant. For Quadrant I, lightweight controls focusing on attribution, format standards, and quality assurance are sufficient. For Quadrant II, terms-of-service enforcement, consumer protection mechanisms, and proportionate civil penalties provide adequate deterrence. For Quadrant III, the governance challenge is most subtle, requiring oversight mechanisms that authorize necessary uses while preventing scope creep, including statutory limits on use, mandatory deletion timelines, judicial or independent oversight, and ex post audit capabilities. For Quadrant IV, criminal penalties, technical controls, and international cooperation arrangements are required, recognizing that the most serious harms often involve transnational actors.

For Lao PDR, the practical implication is that data governance frameworks must explicitly address each quadrant rather than assuming a one-size-fits-all approach. The Public Data Act addresses Quadrants I and II directly. The Personal Data Protection Law and sector-specific legislation address Quadrant III. The Cybersecurity Law and Criminal Code address Quadrant IV. Coherence across these instruments, achieved through harmonized definitions, complementary institutional architectures, and coordinated enforcement, is essential to avoid governance gaps that sophisticated actors will identify and exploit.

3.5.2. Data as a Managed Asset: Lifecycle Governance and the Reuse

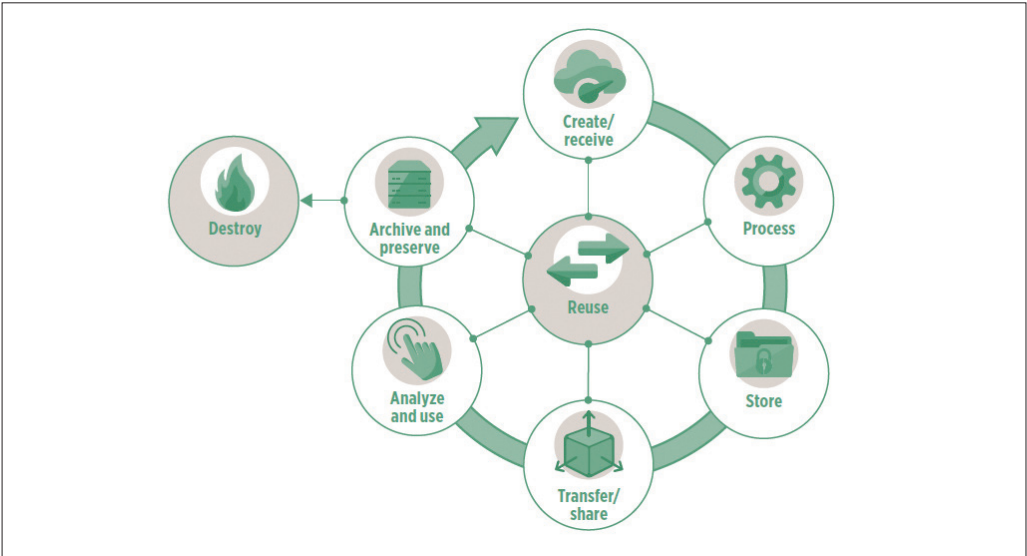
Converting data into a strategic asset requires institutionalizing the full lifecycle of data management: Create/Receive → Process → Store → Transfer/Share → Analyze/Use → Archive/Preserve → Destroy. This lifecycle represents more than a technical workflow; it defines how responsibilities, rights, and risks are allocated across institutions and over time.

The pivotal element in this lifecycle is reuse. When reuse is absent, data accumulates

primarily as a cost-driving storage expenditure, cybersecurity exposure, and regulatory liability. When reuse is enabled, data becomes a renewable asset whose value increases through recombination across sectors, time horizons, and policy domains.

In practice, reuse is constrained less by technological capability than by institutional conditions. Fragmented standards, legal uncertainty, and low levels of trust often prevent data from circulating beyond its point of origin. As a result, the capacity to enable lawful, interoperable, and trusted reuse becomes a defining feature of national data competitiveness.

Figure 7 Data Life Cycle



Source World Bank (2021)

To extract value, states must formalize a data lifecycle:
Create → Process → Store → Share → Analyze → Archive → Destroy.
The decisive inflection point is Reuse. Without reuse, data remains a storage liability. With reuse, it becomes a non-depleting asset whose value compounds through recombination.
Crucially, the barriers to reuse are rarely technical. They are institutional: interoperability gaps, legal uncertainty, and deficits of trust. How a nation resolves these frictions defines its data economy model.

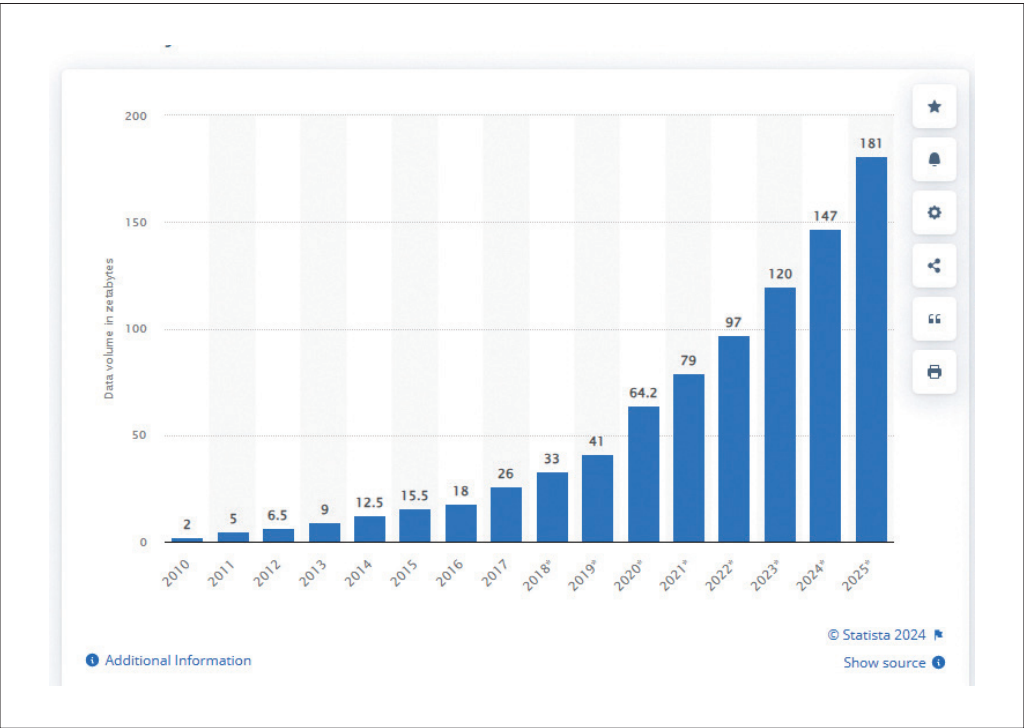
3.5.3. The End of Cheap Scale: Zettabyte Growth, Infrastructure Concentration, and Management Costs

Global data production has expanded rapidly, from approximately 2 zettabytes (ZB) in 2010 to 64 ZB in 2020, with projections reaching 181 ZB by 2025. By that point, the cumulative stock of data is expected to approach 856.7 ZB. This growth reflects the central role of data in AI, autonomous systems, smart cities, and digital health.

Yet scale brings non-linear costs. Storage and transfer expenses rise faster than volume, cybersecurity risks expand with attack surfaces, and compliance burdens intensify as data crosses legal and jurisdictional boundaries. Energy consumption becomes a binding constraint as compute and storage requirements scale. Under these conditions, data abundance increasingly behaves as a systemic liability unless accompanied by governance mechanisms capable of managing cost, risk, and sustainability.

Infrastructure concentration further amplifies these dynamics. The United States hosts 5,381 data centers, creating a geographically concentrated backbone for global data processing. Physical hosting location increasingly influences where data aggregates, which ecosystems capture value, and how access is negotiated across borders.

Figure 8 Global Data Production Growth (2010–2025, Zettabytes)

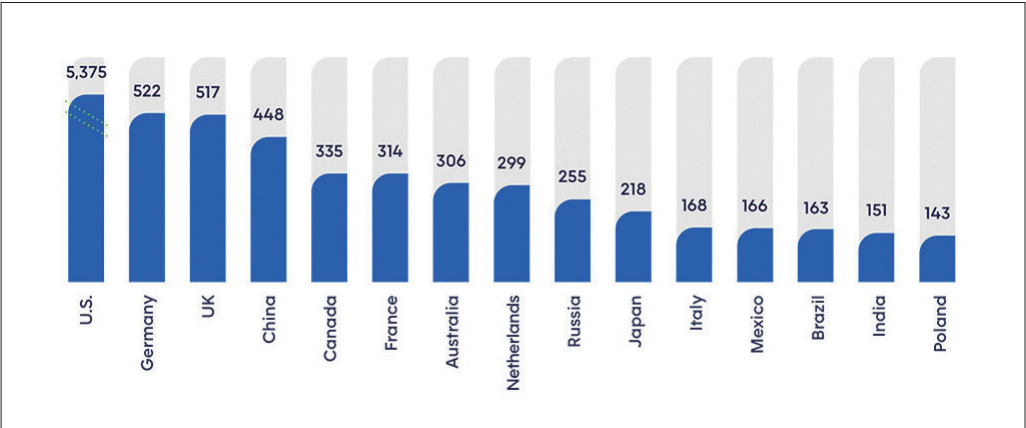


Source <https://www.statista.com/statistics/871513/worldwide-data-created/>

3.5.4. Infrastructure Strategy for Lao PDR: Data Centers, Connectivity, and Cloud

The geographic concentration of data center capacity has emerged as one of the most consequential structural features of the global digital economy. As of March 2024, the United States hosts approximately 5,381 data centers, Germany 522, the United Kingdom 517, China 449, and Canada 336 (Cloudscene, 2024, via Statista). By contrast, Lao PDR has a single listed data center—a gap that is both a constraint and an opportunity. The combined data center capacity of the top ten countries accounts for over 70 percent of global capacity, while the bottom 100 countries combined account for less than 5 percent. This concentration generates several distinct phenomena that shape the strategic options available to emerging economies.

Figure 9 Number of Data Centers Worldwide (by country as of Sep. 2023)



Source Whiteshield (2024)

First, latency-sensitive applications, including financial trading, real-time AI inference, autonomous vehicle coordination, and high-fidelity video conferencing, are systematically biased toward locations within close geographic proximity to major data center clusters. For Southeast Asia, this means that applications consumed in Lao PDR are typically served from data centers in Singapore, Bangkok, Ho Chi Minh City, or Hong Kong, with corresponding implications for digital sovereignty, performance, and transit costs.

Second, data center clusters generate strong agglomeration effects, attracting specialized talent, ancillary services, and complementary infrastructure including subsea cables, internet exchange points, and renewable energy installations. These agglomeration effects, once established, are highly persistent and difficult for late

entrants to disrupt.

Third, the sovereign compute question, that is, whether and to what extent national strategic interests require domestically located data center capacity, has become a central policy debate in jurisdictions ranging from France to India to Australia. Three considerations drive this debate: the legal accessibility of data stored in foreign jurisdictions to foreign law enforcement (for example under the U.S. CLOUD Act), the economic value capture associated with data center investment (jobs, taxes, energy demand), and the resilience implications of dependence on foreign infrastructure for critical national functions.

For Lao PDR, the sovereign compute question requires careful framing. Building greenfield hyperscale data center capacity is unlikely to be economically viable given low domestic demand, limited renewable energy capacity, and the absence of complementary infrastructure. However, several intermediate options are available: a national government cloud (G-Cloud) for sensitive public sector workloads operated within country, a tier-3 data center for commercial colocation services, partnerships with regional hyperscale providers for in-country edge zones, and bilateral arrangements that provide preferential access to capacity in trusted partner jurisdictions. A balanced approach combining these options offers the best mix of sovereignty, cost-effectiveness, and operational resilience.

1) Connectivity Infrastructure: From Backbone to Last Mile

Connectivity infrastructure for Lao PDR requires coordinated investment across four layers: international gateway capacity, national backbone, metropolitan and provincial distribution, and last-mile access. Each layer faces distinct cost, technology, and policy challenges, and gaps at any layer constrain the effectiveness of investments at other layers. The integrated planning approach proposed below treats these layers as a single system rather than as independent investment decisions.

At the international gateway layer, Lao PDR's landlocked geography creates structural dependence on neighboring states (Thailand, Vietnam, China) for international transit. This dependence creates pricing power for transit providers, with international transit costs for landlocked economies in the region generally estimated to be significantly higher than those prevailing in coastal Southeast Asian markets. Mitigation options include expanding terrestrial fiber routes through multiple neighbors to reduce single-route dependency, negotiating regional transit pricing agreements through ASEAN frameworks, and exploring satellite-based capacity (including Low Earth Orbit constellations such as Starlink and Eutelsat OneWeb) as a complementary capacity layer.

At the national backbone layer, Lao PDR had installed over 98,500 kilometers of fiber optic cable by 2023, connecting all 18 provinces and reaching 97 percent of villages nationwide (Ministry of Post and Telecommunication, Lao PDR, 2024). However,

redundancy remains limited and capacity is constrained relative to growing demand. Recommended priorities include establishing dual-route diversity for all provincial capitals, expanding backbone capacity along the North-South corridor (Vientiane to Luang Prabang to Boten) and the East-West corridor (Savannakhet to Dansavanh), and integrating backbone investments with the China-Laos Railway and the Vientiane-Vang Vieng Expressway (completed 2020), as well as the planned Vang Vieng-Boten extension targeted for completion by 2030. Coordination with these transport infrastructure projects offers significant cost savings through shared right-of-way and joint civil works.

At the metropolitan and provincial distribution layer, the priority is to expand fiber and 4G coverage to district capitals and major towns. As of late 2024, 4G/LTE coverage reached approximately 78 percent of the population, with significant gaps remaining in rural and mountainous regions (ts2.tech, 2025). The Telecommunication Development Fund, established under Article 30 of the Lao Telecommunications Law (amended 2011) and funded by levies on telecommunications operators, provides a financing mechanism for non-commercial connectivity investments. Recommended enhancements include expanding Fund eligibility to community-based connectivity providers, mandating tower sharing arrangements to reduce duplication, and structuring Fund disbursements to prioritize areas with highest social returns.

At the last-mile layer, the key challenges are affordability of devices and service plans, particularly for low-income households, and the coverage gap in dispersed rural settlements. Affordability interventions include device subsidy programs targeted at vulnerable populations, structured tariff regulation for entry-level service plans, and partnerships with mobile network operators on financial inclusion offerings that bundle connectivity with mobile financial services. Coverage gap interventions include community network frameworks that allow non-traditional providers to deliver services in non-commercial areas, partnerships with rural electrification programs to leverage existing infrastructure, and targeted satellite connectivity for the most remote settlements.

2) Cloud Infrastructure: National G-Cloud and Hybrid Architecture

Cloud infrastructure for the Lao PDR public sector requires careful balance between sovereignty objectives, cost efficiency, and operational resilience. A pure on-premise approach would maximize sovereignty but at the cost of operational efficiency, while a pure public cloud approach would minimize cost but at the cost of sovereignty over critical workloads. The recommended approach is a hybrid architecture combining a National Government Cloud (G-Cloud) for sensitive workloads with selective use of regional public cloud capacity for non-sensitive workloads.

The proposed G-Cloud architecture is structured in three tiers calibrated to workload sensitivity. Tier 1 (Sovereign), to be hosted in domestically located data centers and

operated by a purpose-built state agency or designated state-owned entity, would accommodate the most sensitive workloads including national security applications, criminal justice records, and intelligence services. Tier 2 (Trusted), to be hosted in regional partner jurisdictions under bilateral data sovereignty agreements to be negotiated, would accommodate moderately sensitive workloads including health records, taxation, and central administrative functions. Tier 3 (Standard), hosted on commercial public cloud platforms operated by hyperscale providers, accommodates non-sensitive workloads including public-facing websites, training environments, and analytical workloads on de-identified data.

The procurement strategy for G-Cloud should emphasize multi-vendor diversity at the system level even where individual workloads are sole-sourced. Specifically, the Tier 1 infrastructure should be procured under arrangements that preserve the ability to migrate workloads across providers, including mandatory adherence to open standards, contractual data portability commitments, and structured vendor performance review cycles. The Tier 2 infrastructure should be procured through competitive arrangements that include at least two regional partners (for example, Singapore-based and Malaysia-based providers), avoiding concentration in any single jurisdiction.

3) Lao PDR Hydroelectric Compute Opportunity

Lao PDR's hydroelectric capacity creates a distinctive strategic opportunity in the emerging market for sustainable compute infrastructure. As of 2025, Lao PDR's total installed generation capacity reached approximately 12.3 GW, of which hydropower accounts for roughly 72 percent—equivalent to approximately 8,900 MW of installed hydroelectric capacity (GlobalData, 2026). Power exports generated approximately USD 2.38 billion in revenue in 2023 and USD 2.6 billion in 2024, making electricity the single largest export category (Laotian Times, 2024; China-Global South Project, 2026). However, this revenue is highly dependent on a small number of long-term power purchase agreements with neighboring utilities, particularly Thailand and Vietnam. Diversifying revenue streams through domestic data center hosting, particularly for AI training workloads with high power intensity, offers attractive long-term economics.

Realizing this opportunity requires addressing five complementary requirements. First, transmission infrastructure must support high-density loads at proposed data center locations, requiring upgrades to substations, switching equipment, and ancillary grid infrastructure. Second, fiber connectivity must be available at competitive prices and with low latency to major regional carrier hotels in Singapore, Bangkok, and Hong Kong. Third, regulatory frameworks must support data center operations, including permits, environmental clearances, and customs treatment for imported equipment. Fourth, workforce development must produce qualified data center technicians and operations staff. Fifth, fiscal incentives, including tax holidays and preferential electricity tariffs,

must be calibrated to compete with offerings from Malaysia, Thailand, and Indonesia.

A phased approach is recommended. Phase 1 (Years 1–3) focuses on a demonstration data center of 10-20 MW capacity at a strategic location with existing transmission and connectivity infrastructure, likely near Vientiane or Savannakhet, the latter offering proximity to the East-West Economic Corridor and Vietnam border crossings. Phase 2 (Years 4–7) expands to 50-100 MW capacity, attracting at least one international hyperscale tenant. Phase 3 (Years 8–10) targets 200–500 MW capacity, positioning Lao PDR as a regional hub for sustainable AI compute. The economic potential at full Phase 3 capacity is considerable, encompassing significant export revenue, direct and indirect employment, and reduced dependence on power export contracts as the primary electricity revenue stream.

4) Energy and Sustainability Constraints on Compute Growth

Energy availability has become the binding constraint on compute capacity expansion in major markets, with implications that extend far beyond the data center sector. According to the IEA, global data center electricity consumption reached approximately 415 terawatt-hours (TWh) in 2024, equivalent to roughly 1.5 percent of global electricity demand, growing at 12 percent per year over the preceding five years (IEA, 2025). The IEA base case projects this to approximately double to 945 TWh by 2030, driven primarily by AI training workloads (IEA, 2025). In the United States, several utilities have begun rationing data center grid connections, while in Ireland and the Netherlands, authorities have introduced significant restrictions on new data center construction in response to grid stress.

These constraints are reshaping data center geography. Locations with abundant low-carbon electricity, particularly hydroelectric power in Norway, Sweden, Iceland, and parts of Canada, have emerged as preferred hosts for new capacity. Nuclear-powered grids, including those in France, Finland, and parts of the United States, are similarly attractive. Solar-rich regions in the Middle East, North Africa, and parts of Southeast Asia have begun marketing themselves as future data center destinations, contingent on infrastructure investments in transmission and reliability.

Lao PDR is uniquely positioned in this regard. The country's hydroelectric capacity, which has historically positioned it as the “battery of Southeast Asia” for power exports to Thailand, Vietnam, and Cambodia, represents a potentially significant strategic asset for sustainable compute hosting. Realizing this potential requires complementary investments in subsea or terrestrial fiber connectivity, grid reliability, and the regulatory frameworks needed to attract international hyperscale operators. Bilateral cooperation with Singapore, which faces severe domestic energy constraints on data center expansion, represents a particularly promising pathway, given shared ASEAN membership and growing bilateral economic engagement.

3.5.5. Digital Twins and the Shift from Recording Reality to Optimizing Reality

The strategic function of data has evolved from documentation to optimization. Digital twins—high-fidelity virtual representations of physical systems—are now deployed across aviation, logistics, manufacturing, urban management, and behavioral analysis. These systems are designed not merely to mirror the world, but to simulate it continuously in order to predict outcomes and optimize decisions.

This shift has important governance consequences. Digital twins significantly increase data volume and velocity, particularly in sensor-intensive sectors. At the same time, they create a new form of leverage: control over the platforms that model and optimize real-world systems translates into influence over industrial performance, public service delivery, and critical infrastructure operations. The data intensity of autonomous systems illustrates this dynamic, with sensor streams estimated at between 5 and 40 TB per vehicle per day in test environments (Tuxera, 2020; Samsung Semiconductor, 2023), feeding continuous AI improvement cycles.

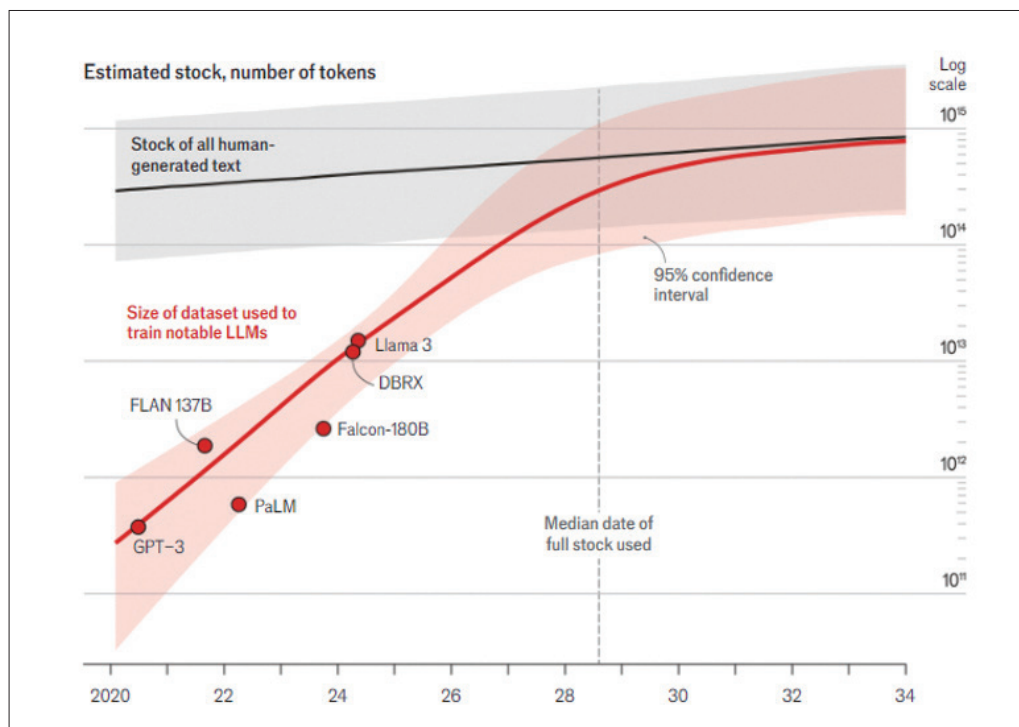
3.5.6. AI Systems, Scaling Logic, and the Emerging “Data Wall”

Under Article 3 of the EU AI Act, an AI system is defined as a machine-based system designed to operate with varying levels of autonomy and adaptability, generating outputs—such as predictions, content, recommendations, or decisions—that influence physical or virtual environments. This definition underscores that AI is not a static application but a system embedded in continuous feedback loops with real-world contexts.

Operationally, AI systems function across two phases: a build phase, in which data is collected and models are trained, and a use phase, in which models interact with real-world inputs and feed outputs back into their environments. For much of the past decade, performance gains followed a scaling logic in which increases in data, algorithms, and computing power produced steady improvements.

That logic is now encountering a structural bottleneck. The supply of high-quality human-generated training data is finite, and frontier models are rapidly approaching their limits. Projections suggest that a “Data Wall” may emerge around 2028, as training demand converges with the available stock of high-quality text. This convergence reduces the effectiveness of brute-force scaling and elevates questions of data provenance, legitimacy, and reuse to first-order strategic concerns.

Figure 10 The Data Wall (Projected -2028):
Training Demand vs. High-Quality Human Text Supply



Source Epoch AI, Requested from The Economist (2024).

3.5.7. Strategic Adjustments: Data Quality, Synthetic Generation, and Feedback-Based Refinement

As scaling constraints intensify, three adjustment pathways are becoming increasingly prominent. First, emphasis is shifting toward data quality rather than raw volume. Refined datasets such as C4, derived from extensive filtering of web-scale sources like Common Crawl, illustrate how governance choices—what to include, exclude, and validate—directly shape model performance.

Second, synthetic data generation is gaining prominence. AlphaGo Zero demonstrated that self-generated data, produced through self-play rather than human records, can support rapid capability gains. This approach reduces dependence on scarce or legally contested datasets, though it also introduces risks of self-reinforcing bias and therefore requires oversight.

Third, feedback-based refinement, including reinforcement learning from human feedback (RLHF), is becoming central to performance improvement and alignment. As raw

data scaling loses effectiveness, structured human judgment increasingly determines reliability and safety outcomes.

Table 15 Example of Training Data Composition and the Quality Pivot (LLaMA-1)

Dataset	Sampling proportion	Epochs	Disk size
CommonCrawl	67.0%	1.10	3.3 TB
C4	15.0%	1.06	783 GB
GitHub	4.5%	0.64	328 GB
Wikipedia	4.5%	2.45	83 GB
Books	4.5%	2.23	85 GB
ArXiv	2.5%	1.06	92 GB
StackExchange	2.0%	1.03	78 GB

Note This table reports the data mixtures used for pre-training. For each dataset subset, the sampling proportion, the number of epochs performed when training on 1.4 trillion tokens, and the corresponding disk size are shown. Pre-training runs conducted on 1 trillion tokens use the same sampling proportions.

Source Touvron et al. (2023), requoted from The Economist (2024).

3.5.8. AI Governance and Workforce Strategy for Lao PDR

The regulation of frontier AI systems has emerged as the most contested area of digital policy globally, with three distinct regulatory paradigms competing for influence. The European Union's AI Act, which entered into force in August 2024, adopts a risk-based approach that imposes graduated obligations on AI systems according to their assessed risk level, with prohibitions on certain high-risk uses (including social scoring and untargeted scraping of facial images) and compliance obligations for foundation models. The United States, in the absence of comprehensive federal legislation, has relied on executive orders, voluntary commitments from leading AI developers, and sector-specific regulations from agencies such as the Federal Trade Commission, the Equal Employment Opportunity Commission, and the Food and Drug Administration. China has implemented a hybrid approach combining algorithm registration requirements (under the 2022 Internet Information Service Algorithmic Recommendation Management Provisions) with content moderation obligations under the 2023 Generative AI Service Management Provisions.

These three paradigms reflect distinct underlying philosophies about the appropriate balance between innovation, consumer protection, and state oversight. The European model emphasizes ex ante risk classification and harmonized rules, the American model

emphasizes ex post enforcement and sectoral specialization, and the Chinese model emphasizes content control and political alignment. For emerging economies, including Lao PDR, the practical question is which elements of each model are appropriate for adoption given current institutional capacity, economic structure, and political context.

A pragmatic approach for Lao PDR involves selective adoption of three elements that have demonstrated value across all three paradigms. First, mandatory transparency obligations for high-impact AI systems used in public administration (for example, automated decision-making in social benefits, taxation, or permitting) provide a foundation for accountability without imposing prohibitive compliance costs. Second, sector-specific guidance for high-stakes domains, including health, finance, and public safety, allows regulatory specialization where domain expertise is most valuable. Third, mandatory incident reporting and post-deployment monitoring for AI systems above certain capability thresholds enable regulators to develop ground truth about emerging risks before formalizing comprehensive ex ante rules.

1) The Compute Governance Question

As AI systems require ever-larger compute resources for training, the governance of compute capacity itself has emerged as a strategic question. Frontier model training runs are estimated to require compute resources costing USD 78–192 million for current generation models such as GPT-4 and Gemini Ultra, with projections suggesting that by 2027, training runs may exceed USD 1 billion in compute costs (Epoch AI, 2024; Stanford AI Index, 2025). This concentration of compute resources in the hands of a small number of well-capitalized firms, primarily located in the United States and to a lesser extent China, has prompted concerns about market concentration, geopolitical risk, and the potential weaponization of compute access.

Several governance proposals have emerged in response. The U.S. has imposed export controls on advanced semiconductor equipment, particularly extreme ultraviolet (EUV) lithography systems and advanced AI accelerators, restricting their sale to designated jurisdictions. Multilateral initiatives, including the Bletchley Declaration (2023) and the AI Safety Summits, aim to develop coordinated approaches to evaluating frontier AI systems and managing systemic risks. National strategies, including the U.K. AI Safety Institute, the U.S. AI Safety Institute, and the EU AI Office, are building institutional capacity for technical evaluation of advanced AI systems.

For Lao PDR, the compute governance question has limited direct application given the absence of frontier AI development capabilities domestically. However, indirect implications are significant. First, geopolitical alignment of compute access affects which AI capabilities are accessible domestically and on what terms. Second, dependence on foreign-developed AI systems for critical applications (translation, search, recommendation, automated decision-making) implies dependence on the regulatory

choices of foreign jurisdictions. Third, the long-term aspiration to develop domestic AI capability requires advance planning around talent, compute access, data resources, and regulatory frameworks.

2) AI Governance Framework Proposed for Lao PDR

Drawing on the regulatory analysis above, a pragmatic AI governance framework for Lao PDR can be structured around four mechanisms calibrated to current institutional capacity. The framework deliberately avoids comprehensive ex ante regulation in favor of targeted obligations focused on the highest-impact AI uses, recognizing that broader regulatory ambition would exceed current implementation capacity and could deter legitimate beneficial uses.

Mechanism 1: Public Sector AI Transparency. All public sector AI deployments above a defined threshold (initially set at 10,000 affected individuals annually, later expandable) must be registered in a public AI registry maintained by the Ministry of Technology and Communications. Registration entries must include the AI system's purpose, the categories of input data, the categories of output decisions or recommendations, the responsible public institution, and an accessible plain-language description of how the system affects citizens. **Mechanism 2: High-Stakes AI Impact Assessments.** AI systems used in high-stakes domains (criminal justice, social benefits, employment, education, health, financial services) must undergo Algorithmic Impact Assessments before deployment, conducted to standardized methodologies, with results published in summary form.

Mechanism 3: AI Incident Reporting. Operators of AI systems above defined capability or scale thresholds must report material AI incidents to a designated AI Safety unit within MTC, with thresholds calibrated by sector. Aggregate incident statistics are published annually to inform broader policy and to enable continuous improvement. **Mechanism 4: AI Sandboxes.** A regulatory sandbox program, modeled on the financial sector sandbox approach pioneered by the United Kingdom and adopted in Singapore, Thailand, and Malaysia, allows time-bounded, scope-bounded AI experimentation with relaxed regulatory requirements in exchange for structured monitoring. Sandbox participation builds regulatory capacity to assess emerging risks while supporting legitimate innovation.

3) AI Workforce and Talent Strategy

The AI workforce challenge for Lao PDR is more acute than the broader digital workforce challenge given the specialized skill requirements and the global supply-demand imbalance for AI talent. The pool of individuals with specialized training in machine learning remains very limited, and advanced degree holders in AI-relevant fields are exceptionally rare. The competitive global market for AI talent creates substantial

retention challenges, as domestically trained specialists face strong incentives to pursue opportunities abroad.

A multi-layered talent strategy is required. Layer 1 focuses on AI literacy for the broader workforce, integrating AI fundamentals into university computer science and engineering curricula, vocational training programs, and continuing education for working professionals. Layer 2 focuses on AI specialists, supporting graduate-level AI education through scholarship programs (with bonding requirements ensuring return to Lao PDR), structured partnerships with leading AI institutions in Korea, Singapore, Japan, and selected Western institutions, and visiting researcher exchange programs. Layer 3 focuses on AI leadership, building a small cohort of senior technologists capable of leading AI initiatives in priority sectors and within government, primarily through mid-career international placements and applied research projects.

Diaspora engagement represents a particularly underutilized resource. The Lao diaspora in Australia, France, the United States, and elsewhere includes a small but growing number of AI specialists. Structured diaspora engagement programs, including remote contribution arrangements, periodic in-country residencies, and transition pathways for those interested in returning, can multiply the effective AI workforce available to support national initiatives.

3.5.9. Political Economy and Sovereignty: The Multi-Layered Data Economy

Data is rarely just one thing. It is frequently compared to oil (a resource requiring refinement), infrastructure (a public good requiring management), or sunlight (a shared resource for social utility). These metaphors reflect the complex economic nature of data and the friction between competing global models of governance.

1) The Economic Nature of Data

Economically, data possesses a unique duality: it is non-rivalrous (multiple users can use it simultaneously) but excludable (access can be restricted through legal or technical means) (Jones & Tonetti, 2020). This allows for three coexisting models:

The Private-Led Model: Data as “the new oil.” Value is extracted through cleaning and labeling—a process exemplified by Scale AI, which employs thousands of global workers to annotate autonomous driving data (Gray & Suri, 2019).

The Public/Open Model: Data as “sunlight.” Initiatives like Waymo's open datasets or Microsoft's Open Data Initiative aim to maximize social utility through sharing, supported by privacy-preserving tech like differential privacy.

The Cooperative/Governed Model: Data as “infrastructure.” This treats data like roads

or power grids, requiring trust-based governance. Examples include the EU's DECODE project and Taiwan's citizen-participatory hackathons (Roberts et al., 2021).

2) China's Strategy: Data as a Factor of Production

China is constructing a comprehensive “data empire” that aims to fundamentally redefine the digital economy and the evolution of artificial intelligence. By leveraging a user base of 1.1 billion internet users and a pervasive network of surveillance technology, the Chinese government is moving beyond mere collection toward a model where data is managed as a core economic pillar (The Economist, 2024).

① The Institutional Foundation: Data as a Production Factor

The hallmark of the Chinese approach is the formal classification of data as a “factor of production,” placing it on equal footing with land, labor, capital, and technology. This strategy was codified in a 2020 official guideline aimed at improving the market-based allocation of production factors to foster a data market and enhance the integration of the digital and real economies (Xinhua, 2020).

President Xi Jinping has described this as a foundational resource with a “revolutionary impact” on global competition. Unlike the Western regulatory focus on individual privacy, China's trajectory emphasizes the state's ability to “marshal” data resources from both the public and private sectors to bolster national power (The Economist, 2024).

② The “National Data Ocean” and Digital ID

A primary objective of this strategy is the creation of an “integrated national data ocean.” This project involves:

- **Asset Valuation:** Assessing the data holdings of state-owned enterprises (SOEs) to value them as balance-sheet assets.
- **National Digital ID:** The launch of a centralized ID system designed to allow central authorities to maintain a ledger of an individual's online activity, effectively shifting control from private tech giants to a state-managed “panopticon” (The Economist, 2024).

③ Economic Scaling vs. Dystopian Risks

While centralization offers significant economies of scale for AI model training and lowers barriers for small firms, it introduces critical vulnerabilities:

- **Security Risks:** Centralized data pools are high-value targets for hackers, as seen in past breaches like the Shanghai police record leak.
- **Stifled Innovation:** If private firms lose control over the data they generate, the commercial incentive to innovate may diminish.
- **Surveillance Paradise:** The system risks creating an efficient but dystopian “Big

Brother” environment that prioritizes state control over civil liberties (The Economist, 2024).

3) Data Gravity and the Sovereignty Crisis

Following the 2013 Snowden disclosures, data moved from a technical issue to a sovereignty issue. This has resulted in a fragmented regulatory landscape:

① Europe

Europe is strengthening its data sovereignty through two primary pillars: regulatory frameworks and technological infrastructure.

The European Union utilizes the General Data Protection Regulation (GDPR), also known as Regulation (EU) 2016/679, to strictly govern the processing and movement of personal data. A critical component of this framework is Chapter 5 (Articles 44–50), which specifically regulates the transfer of personal data to third countries or international organizations. These rules ensure that the high level of protection guaranteed within the EU is not undermined when data is moved abroad. Transfers are generally only permitted if the destination country provides an “adequate” level of protection or if specific legal safeguards are in place (Intersoft, n.d.).

To reduce dependence on non-European cloud providers, the EU is spearheading Gaia-X. This initiative is a federated data infrastructure designed to foster an autonomous ecosystem based on European values of transparency and sovereignty. Gaia-X aims to create “Data Spaces” where participants can share and control data within a secure network of interoperable standards, ensuring that participants retain full authority over their digital assets (Gaia-X, n.d.).

② United States

The United States serves as the primary epicenter of this gravity, currently hosting approximately 45% of the world's data centers. Within the U.S., Northern Virginia's “Data Center Alley” stands out as the most critical hub, serving as the transit point for an estimated 70% of global internet traffic. This unparalleled density makes it the largest and most connected cluster of digital infrastructure in the world.

According to the Whiteshield (2024) report, data center infrastructure has evolved far beyond its traditional role as a storage facility; it is now a “core driver” that enables and revitalizes the entire digital ecosystem.

- **Economic Impact:** Data centers act as foundational infrastructure that has a massive impact on the national economy by supporting digital services and high-tech industries.
- **The Virtuous Cycle:** As large-scale datasets congregate in specific regions—such as Northern Virginia—they create a self-reinforcing virtuous cycle.

- **Value Attraction:** This density attracts a higher concentration of applications, specialized talent, and economic value, further strengthening the regional hub's dominant position.

The US enacted the CLOUD Act (2018) to allow law enforcement access to data stored abroad under specific agreements.

The global digital landscape is increasingly bifurcating into two distinct ideological camps: the “Data Free Flow with Trust” (DFFT) coalition and a more restrictive “closed bloc” led by China and Russia. The DFFT framework, originally proposed by former Japanese Prime Minister Shinzo Abe at the 2019 World Economic Forum in Davos and later endorsed at the G20 Osaka Summit, serves as the cornerstone for democratic data governance (Ministry of Foreign Affairs of Japan, 2019).

Championed by the US, EU, and Japan, it aims to create an interoperable digital environment where information moves seamlessly across borders to fuel innovation and economic growth, while simultaneously upholding stringent standards of privacy, security, and intellectual property rights. By establishing “trust” as the prerequisite for “flow,” the DFFT seeks to bridge diverse regulatory regimes—such as the EU's GDPR and the US's market-led approach—into a unified, transparent coalition that stands in direct opposition to state-led digital protectionism.

4) The Legal and Labor Battlefield

As AI matures, the “fair use” of data has become the central legal conflict of the decade.

① The Copyright Conflict

Getty Images v. Stability AI (2023): A landmark case alleging the unauthorized use of 12 million images for model training.

The New York Times v. OpenAI (2023): This lawsuit tests the boundaries of “transformative use” versus “market harm,” arguing that LLMs compete directly with the original content they were trained on (New York Times Co. v. Microsoft Corp. et al., 2023).

Licensing Solutions: To mitigate risk, OpenAI has signed significant deals, including a \$250 million agreement with News Corp and a content-sharing partnership with the AP (News Corp, 2024).

② The “Hidden Labor” of AI

The sustainability of AI depends on a massive, often invisible workforce. Firms like Scale AI provide the supervised fine-tuning data necessary for computer vision, while Surge AI specializes in Reinforcement Learning from Human Feedback (RLHF). This “human-in-the-loop” ecosystem is what allows AI to align with human values and complex preferences.

3.5.10. ASEAN Digital Integration and Lao PDR's Strategic Position

The ASEAN Digital Integration Framework Action Plan (DIFAP) 2019–2025 and the successor ASEAN Digital Masterplan 2025 establish ambitious commitments to regional digital integration, including the ASEAN Digital Economy Framework Agreement (DEFA), negotiations for which were concluded in May 2026. Under DEFA, member states have committed to harmonization in eight priority areas: digital trade, cross-border data flows, digital identity, electronic payments, online safety, digital skills, emerging technologies, and digital infrastructure connectivity. ASEAN's digital economy is projected to reach approximately USD 1 trillion by 2030 under current growth trends, with DEFA implementation expected to potentially double this to USD 2 trillion (ASEAN, 2023), while also strengthening ASEAN's collective bargaining position relative to extra-regional partners.

Lao PDR's strategic position within this framework is shaped by three considerations. First, as a landlocked developing economy at an earlier stage of digital transition, Lao PDR has both the most to gain from regional digital integration (in terms of market access, supply chain participation, and economic diversification) and the most adjustment to undertake (in terms of regulatory harmonization and infrastructure investment). Second, as a member of the ASEAN-China Free Trade Area, the Belt and Road Initiative, and various Mekong sub-regional initiatives, Lao PDR sits at the intersection of multiple overlapping economic frameworks with sometimes competing requirements. Third, as a country with strong bilateral ties to Vietnam, Thailand, and China, Lao PDR has differentiated access to technical assistance and infrastructure investment from a range of partners.

Practical implications for Lao PDR's digital strategy include: alignment of relevant national data protection legislation with ASEAN Model Contractual Clauses for Cross-Border Data Flows; participation in the ASEAN Single Window for trade facilitation; harmonization of digital identity standards with ASEAN frameworks to enable cross-border authentication for travel, finance, and education; adoption of ASEAN Digital Standards for cybersecurity and consumer protection; and active participation in the ASEAN Digital Economy Forum and related ministerial mechanisms to ensure that Lao PDR's interests are represented in evolving regional frameworks.

3.5.11. Cross-Border Data Flow Regimes and Strategic Hedging

The fragmentation of global cross-border data flow regimes presents both challenges and opportunities for emerging economies. The major regimes currently include: the EU adequacy framework under GDPR (which conditions data transfers on assessed adequacy of recipient jurisdiction protections), the Asia-Pacific Economic Cooperation

(APEC) Cross-Border Privacy Rules (CBPR) system (which provides a voluntary certification mechanism for organizations transferring personal data within APEC), the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) and the Regional Comprehensive Economic Partnership (RCEP) provisions on electronic commerce, and various bilateral arrangements including the U.S.-EU Data Privacy Framework.

For Lao PDR, the practical question is which regimes to align with and on what timeline. Full alignment with all major regimes is neither feasible nor desirable, given the diversity of substantive standards and the costs of compliance. A staged approach, prioritizing alignment with regimes that offer the highest economic returns relative to compliance costs, is more pragmatic. ASEAN Model Contractual Clauses, given their direct economic relevance and lower compliance burden, represent the highest-priority alignment target. APEC CBPR alignment, achievable through participation in the APEC Privacy Framework, offers complementary access to a wider Asia-Pacific market. For longer-term alignment, engagement with broader international frameworks as Lao PDR's regulatory capacity matures remains a strategic option.

3.6. Implementation Architecture and Monitoring Framework

3.6.1. Governance Architecture for Implementation

Translating the strategic framework outlined in the preceding chapters into operational outcomes requires a clearly defined governance architecture with explicit roles, responsibilities, decision rights, and accountability mechanisms. International experience indicates that the absence or ambiguity of governance arrangements is the single most common cause of failure in national digital transformation programs. For Lao PDR, the proposed governance architecture rests on five tiers: political leadership, strategic direction, technical implementation, sectoral coordination, and stakeholder engagement.

At the political leadership tier, senior government leadership provides ultimate accountability for program outcomes. A high-level National Digital Transformation Committee—chaired, for example, by a designated senior minister and comprising representatives from relevant ministries, the central bank, academia, the private sector, and civil society—could meet on a regular basis to review progress and provide strategic direction. At the strategic direction tier, a Steering Committee comprising Vice Ministers and senior officials from line agencies would translate political direction into operational priorities and resolve cross-cutting implementation issues.

At the technical implementation tier, the Ministry of Technology and Communications

(MTC), equipped with dedicated staff and budget, manages the day-to-day execution of priority initiatives across relevant operational functions including strategy and coordination, technology and infrastructure, and programs and implementation. At the sectoral coordination tier, designated focal points within each line ministry serve as the primary points of contact for cross-cutting initiatives and as champions for sectoral digital transformation. At the stakeholder engagement tier, a Digital Economy Advisory Group, comprising private sector, academic, and civil society representatives, provides ongoing input on program design and implementation.

3.6.2. Performance Measurement and Key Performance Indicators

A robust performance measurement framework is essential to track progress, identify implementation bottlenecks, and demonstrate accountability to stakeholders including the public, parliament, and development partners. The framework proposed for Lao PDR is structured around four levels: outcome indicators (measuring ultimate societal and economic impact), output indicators (measuring direct deliverables of program activities), process indicators (measuring the efficiency and quality of implementation processes), and input indicators (measuring resource mobilization and allocation).

Illustrative outcome-level indicators may include measures such as digital economy contribution to GDP, digital financial inclusion rates, digital service penetration across government functions, and assessments of overall digital maturity. These are illustrative examples; the specific indicator set and associated targets should be determined through a consultative process with relevant ministries and development partners, and formally adopted in a separate implementation plan.

At the output level, illustrative indicators may include measures such as the volume of open public datasets, availability of high-value data via API, and coverage of digital identity systems. At the process level, illustrative indicators may capture implementation efficiency—for example, time-to-publish for new datasets, responsiveness of data access dispute resolution, and citizen satisfaction with digital services. At the input level, illustrative indicators may track resource mobilization, such as public expenditure on digital transformation as a share of total expenditure, ODA flows to digital initiatives, and growth in the trained digital workforce.

3.6.3. Risk Management Framework

Comprehensive risk management is critical for a program of this scale and complexity. The proposed risk management framework identifies five principal risk categories, each

with specific risks, mitigation strategies, and monitoring mechanisms. The five categories are: political and institutional risks, technical and infrastructure risks, financial and economic risks, social and inclusion risks, and security and resilience risks.

Political and institutional risks include changes in political priorities, leadership transitions, and inter-ministerial conflicts that could derail implementation. Mitigation strategies include securing legislative codification of key initiatives to enhance continuity and durability, building broad-based stakeholder coalitions including private sector and civil society, and maintaining transparent reporting to demonstrate value and build public support. Monitoring mechanisms include periodic political risk assessments and structured stakeholder feedback loops.

Technical and infrastructure risks include cybersecurity incidents, system failures, vendor lock-in, and obsolescence. Mitigation strategies include adopting open standards and avoiding proprietary lock-in, maintaining vendor diversity at the system level, building robust national cybersecurity incident response capabilities, and implementing graduated rollout strategies that limit the scope of impact of any single failure. Financial and economic risks include foreign exchange exposure (given that much digital infrastructure is denominated in USD), commodity price volatility (affecting fiscal capacity), and sustainability of recurring expenditure obligations. Mitigation strategies include diversifying funding sources, building reserves for recurring expenditure, and structuring contracts to allocate currency risk appropriately.

Social and inclusion risks include digital divide effects (excluding rural, elderly, and low-income populations), workforce displacement effects (affecting workers in occupations vulnerable to automation), and privacy and surveillance concerns. Mitigation strategies include explicit inclusion targets in program design, reskilling and reemployment support for affected workers, and robust personal data protection frameworks. Security and resilience risks include cybersecurity threats from state and non-state actors, supply chain risks from concentration in single vendors or jurisdictions, and physical infrastructure risks from natural disasters and accidents. Mitigation strategies include defense-in-depth cybersecurity architectures, supply chain diversification, and physical redundancy in critical infrastructure.

3.6.4. Stakeholder Engagement and Communications

Sustained stakeholder engagement is essential to build and maintain the social license for digital transformation initiatives. The stakeholder engagement strategy proposed for Lao PDR is structured around four primary stakeholder groups: citizens and civil society, private sector enterprises, academia and research institutions, and development partners. Each group is engaged through dedicated mechanisms calibrated

to their interests, capacities, and modes of participation.

For citizens and civil society, engagement mechanisms include regular public consultations on draft legislation and major program initiatives, citizen feedback platforms for digital services, and structured engagement with civil society organizations on issues including digital rights, accessibility, and inclusion. Public communications campaigns, in Lao language and through traditional and digital media channels, build awareness and understanding of digital transformation initiatives. For private sector enterprises, engagement mechanisms include regular dialogue with the Lao National Chamber of Commerce and Industry, sectoral working groups for priority industries (banking, telecommunications, retail, manufacturing), and structured public-private partnerships for major infrastructure initiatives.

For academia and research institutions, engagement mechanisms include grants and fellowships supporting research on digital economy topics relevant to Lao PDR, structured collaboration on workforce development initiatives, and knowledge exchange arrangements between academic and government institutions. For development partners, engagement mechanisms include a dedicated coordination forum convened by a relevant central government body, joint program design and review cycles, and harmonized reporting frameworks to reduce administrative burden on counterpart agencies.

3.6.5. Capacity Building and Human Capital Development

Human capital is the binding constraint on digital transformation in most emerging economies, and Lao PDR is no exception. The capacity building strategy proposed here addresses three interconnected challenges: building digital competence within the public sector, developing the broader digital workforce in the private sector, and ensuring that all citizens have the digital literacy needed to participate in the digital economy.

For the public sector, the strategy may include, for example, digital governance training programs for senior officials, specialized technical training for focal points in line ministries, and digital literacy training for the broader civil service. Partnerships with regional training institutions and development partners can provide access to relevant curricula and expert resources.

For the private sector workforce, the strategy may include, for example, coding and digital skills bootcamp programs, university curriculum modernization in computer science and data science at national universities, and structured industry partnerships providing internships and applied projects. International cooperation with bilateral and multilateral development partners can provide access to scholarship programs, expert exchanges, and curriculum support.

For citizens broadly, the strategy may include, for example, a national digital literacy

campaign targeting the general population, focused digital literacy programs for high-priority populations (including rural communities, women, ethnic minorities, and elderly), and integration of digital literacy into the formal education curriculum from an early stage. Implementation channels may include public libraries, post offices, community telecenters, and partnerships with mobile network operators.

3.6.6. Conclusion: A Decade of Transformation

The vision articulated in this Digital Economy Prosperity Blueprint for Lao PDR is ambitious but achievable. By 2030, Lao PDR can credibly aspire to position itself as a regional contributor to sustainable digital infrastructure, a model of inclusive digital transformation among developing economies in Southeast Asia, and a productive participant in regional and global digital integration frameworks. Realizing this vision requires sustained political commitment, substantial resource mobilization, careful institutional design, and disciplined implementation across the full ten-year horizon.

The opportunity cost of inaction is substantial. Without comprehensive digital transformation, Lao PDR risks being progressively marginalized within the rapidly digitalizing ASEAN economy, with adverse implications for trade, investment, and employment outcomes. Conversely, successful digital transformation has the potential to accelerate Lao PDR's economic advancement, to create new sources of comparative advantage, and to deliver tangible improvements in citizens' welfare across health, education, financial inclusion, and access to public services.

The recommendations in this Blueprint are designed to be actionable rather than aspirational. The proposed legislative and regulatory framework, the strategic pillars, the phased implementation roadmap, the institutional architecture, the performance measurement framework, the risk management approach, the stakeholder engagement strategy, and the capacity building program collectively constitute a coherent and executable agenda. Translating this agenda into outcomes requires sustained political commitment, institutional execution, and partnership with development partners and the private sector. The detailed sectoral applications of this framework are developed further in Chapter 4.

Digital Legislation and Regulatory Framework

4.1. Transformation of Data Governance in the AI Era

4.1.1. Changes in the Digital Environment for AI Data Utilization

In today's rapidly deepening digital transformation, the role of law is no longer confined to regulating or prohibiting specific conduct. In particular, the rapid diffusion of artificial intelligence (AI) technologies strongly calls for legal frameworks that institutionally design the very structure in which new value is created. AI systems do not function solely through algorithms or computing resources; rather, their performance and social utility can be realized only when large-scale, high-quality data is continuously collected, combined, and utilized. As a result, data is no longer a supplementary resource but has been redefined as a core strategic asset of the AI era and a critical component of national competitiveness.

The global data economy is expanding rapidly, driven by economy-wide digitalization and the widespread adoption of AI and cloud technologies. For example, the economic impact of cross-border data flows was already estimated at approximately USD 2.3 trillion in 2014, while the data economy of the European Union (EU-27 plus the United Kingdom) is projected to reach approximately EUR 895.1 billion by 2025.⁹ Taken together, these trends indicate that the overall scale of the global data economy is expected to expand to several trillion dollars in the coming years.

This rapid growth reflects the accelerating digitalization of industries, the pervasive diffusion of AI and cloud technologies, and the establishment of data as a central factor of economic value creation. In other words, data no longer merely constitutes a collection

⁹ James Manyika et al. (2016). Digital globalization: The new era of global flows, McKinsey & Co. <https://goo.gl/hEpAQ9>

of information, but functions as a foundational infrastructure for economic activity and a strategic asset.

In an AI-driven environment, the value of data does not materialize in isolation. Data must undergo processes of cleansing, standardization, integration, and analysis, followed by repeated cycles of learning and reuse, in order to be transformed into social and economic value. In particular, data held by the public sector—by virtue of its scale, reliability, and representativeness—has the potential to play a critical role in AI training and innovation in both public and private services. However, without an appropriate framework for disclosure and utilization, this potential cannot be fully realized.

Against this backdrop, platforms have emerged as core infrastructure for AI data utilization. In the digital economy, platforms extend beyond mere data repositories or websites and function as central intermediaries that enable the collection, distribution, integration, transaction, and utilization of data. As such, platforms serve as the central axis through which value is created, distributed, and monetized in the data economy, exerting decisive influence over the direction and velocity of data flows.

The significance of platforms is equally pronounced in public data policy. Public data platforms constitute institutional and technical nodes that connect internal data management systems of public institutions with external users' access, utilization, and reuse pathways. A platform-centered approach has become particularly important in the AI data utilization environment for the following reasons.¹⁰

First, platforms institutionally ensure the accessibility of data, which is indispensable for AI training and service development. Even where data exists, AI utilization is practically impossible if such data cannot be easily discovered or accessed through clear procedures.

Second, platforms structurally enhance the reusability of data. The machine-readable formats, standardized structures, and sufficient metadata required for AI utilization can be consistently ensured only through platforms, rather than on an institution-by-institution basis.

Third, platforms build trust in AI data utilization by clearly providing information on data provenance, methods of creation, update cycles, and quality management. Such trust is a prerequisite for private enterprises and developers to reliably use public data for AI training and services.

These changes in the AI data utilization environment require a fundamental reorientation of the role of public data legislation. A system that leaves public data provision to the discretionary judgment of individual public institutions cannot reliably

¹⁰ OECD. (2025), Digital Government Review of Korea: Harnessing Digital and Data to Transform Government, OECD Digital Government Studies, OECD Publishing, Paris, pp.97~111. <https://doi.org/10.1787/9defc197-en>.

guarantee the large-scale, continuous, and standardized supply of data demanded by the AI era. Accordingly, public data legislation should be designed to transform data provision into a repeatable and predictable institutional process centered on platforms.

This does not imply that legislation must directly regulate all technical details. Rather, the law should clearly define the basic principles governing public data openness for AI utilization, the allocation of responsibilities for platform operation, and the division of roles among public institutions, while delegating specific technical standards and operational methods to enforcement decrees and subordinate regulations. Only through such a structure can public data function as core infrastructure in the AI era and substantively support data-driven innovation and growth of the data economy linking the public and private sectors.

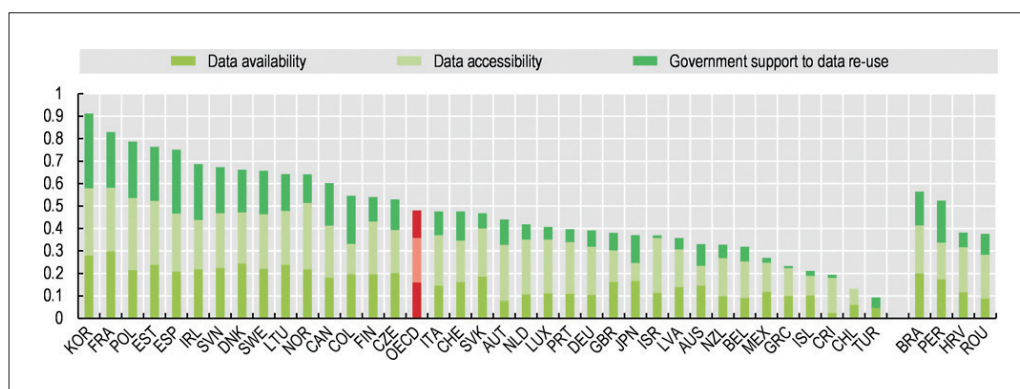
4.1.2. Open Data Policy

Open Data Policy has emerged as a central pillar in the transition toward digital government and a data-driven economy. Traditionally, the disclosure of public information was discussed primarily in terms of administrative transparency and the protection of citizens' right to know. However, digital transformation and the diffusion of AI technologies have redefined public data not merely as an object of disclosure, but as a foundational resource for reuse and value creation. Accordingly, open data policy has evolved beyond an extension of information disclosure regimes into an active data governance policy encompassing the entire lifecycle of data provision, management, and utilization.

In general, open data policy refers to the system of rules and guidelines established to enable broad societal use of data held by public institutions.¹¹ Such a policy typically includes the following core elements. First, public data should be provided openly to all users, without restriction to specific groups or purposes. Second, data should be made available in machine-readable formats that allow automated processing and analysis, rather than being limited to human-readable access. Third, in order to promote utilization, public data should, in principle, be provided free of charge or at minimal cost. Fourth, public data should be accompanied by clear licenses that permit reuse beyond mere viewing, including analysis, integration, redistribution, and service development.

¹¹ Open Data Watch. (2022). Open Data Resource Guide, Data For Policy, p.2.

Figure 11 **Open Data Index 2023**



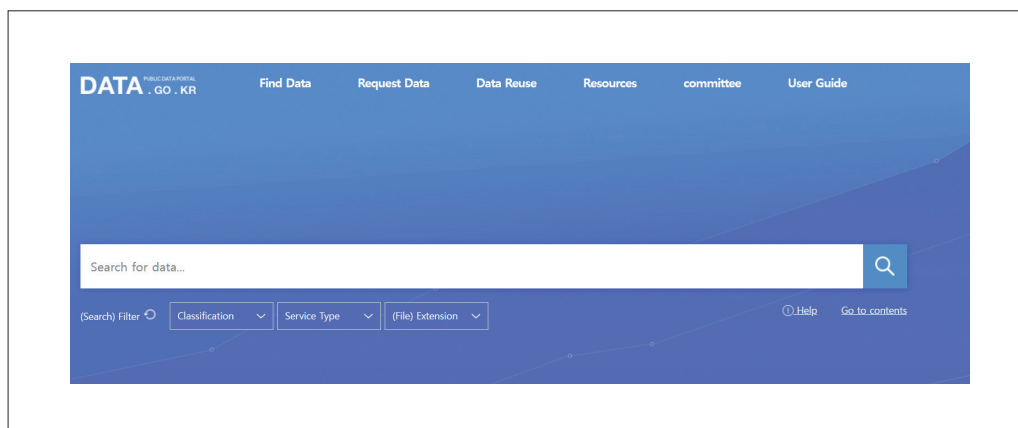
Source: OECD (2022), Survey on Open Government Data 5.0.

As this definition makes clear, the essence of an open data policy does not lie in how much data is disclosed. Rather, the core issue is whether public data is provided in a form that is genuinely usable, and whether institutional conditions are in place that enable the private sector and society at large to generate new value from such data. Where data is released in non-standardized formats, where the permissibility of reuse is unclear, or where access procedures are overly complex, disclosure remains merely formal and cannot be regarded as substantive openness.

The importance of open data policy becomes even more pronounced in an AI-driven environment. AI training and service development require large-scale, high-quality, and standardized datasets. In this context, public-sector data—such as statistical, geospatial, transportation, environmental, health, and administrative data—constitutes a critical source of training data that is difficult for private actors to obtain independently. By ensuring the stable supply of such data, open data policy forms the foundational infrastructure of the AI ecosystem and plays a key role in mitigating data concentration and information asymmetry. From this perspective, open data policy functions not only as a technology policy, but also as an industrial and innovation policy.

Open data policy is also increasingly implemented through a platform-centered approach. In most countries, public data is no longer provided in a fragmented manner through individual institutional websites, but is instead made available in an integrated fashion via government-wide public data portals or platforms. These platforms enhance the effectiveness of open data policy by offering not only data search, access, and download functions, but also standardized data formats, metadata management, information on update cycles, and clear statements of usage conditions. In this sense, open data policy should be understood not as a declaratory principle, but as an operational policy that functions through platforms as its central mechanism.

Figure 12 Korea Public Data Portal



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

The Korean experience provides a clear illustration of how an open data policy can be institutionalized and supported by a coherent governance framework. Through the Act on the Promotion of the Provision and Use of Public Data, Korea has explicitly defined public data as a national public asset and has institutionally guaranteed both the obligation of public institutions to provide data and the right of users to reuse such data. In parallel, Korea has expanded public data policy beyond the confines of administrative governance by operating the Open Data Forum,¹² a multi-stakeholder platform in which government, public institutions, enterprises, academia, and civil society participate.

The Open Data Forum functions as a venue for sharing and discussing policy directions related to public data openness and utilization, legal and institutional reform agendas, technical standards, and private-sector use cases. Through this mechanism, public data policy has evolved beyond a unidirectional model in which the government merely provides data, toward a feedback-driven structure in which private-sector demand and real-world utilization experiences are reflected in policy design. In particular, the incorporation of use cases from startups and enterprises, analytical insights from academia and research communities, and issue-raising by civil society has contributed to enhancing both the effectiveness and social acceptance of open data policy.

Korea's experience demonstrates that open data policy must be designed as an integrated policy framework combining legislation, platforms, and governance mechanisms. A mere declaration of data openness is insufficient to ensure sustained data provision and meaningful utilization. Instead, clear policy principles, operational

¹² Open Data Forum. <https://www.odf.or.kr>. The Open Data Forum is a public–private collaborative consultative platform for communication on data utilization, supported by the Ministry of the Interior and Safety and the National Information Society Agency.

standards, and cooperative structures among stakeholders must be established in tandem. In particular, if public data is to function as a foundational resource for AI development and the digital economy, an open data policy that institutionally balances openness and protection, utilization and accountability, is indispensable.

Ultimately, open data policy should be understood as a core policy instrument that goes beyond transparency, enabling data-driven administrative innovation, private-sector service creation, the development of an AI ecosystem, and enhanced citizen participation simultaneously. From this perspective, open data policy constitutes a central pillar of data governance in the digital era and should serve as the starting point for the future design of public data legislation and institutional frameworks.

4.2. International Legislative Trends

4.2.1. United States (USA)

The United States has developed its public data policy around two central pillars: the guarantee of the right of access to information and the creation of markets through private-sector utilization. This approach is distinctive in that it treats public data as a right of the people while actively permitting commercial reuse, thereby fostering a data-driven industrial ecosystem.

The starting point of U.S. public data legislation is the Freedom of Information Act (FOIA).¹³ FOIA institutionally guarantees public access to information held by federal government agencies, transforming information disclosure from an exception into a general principle. Although FOIA was enacted prior to the digital data era, it has been continuously expanded and interpreted to encompass electronic information disclosure and the provision of digital data, thereby functioning as the legal foundation of U.S. public data policy.

In parallel, the U.S. federal government operates a government-wide public data platform centered on Data.gov.¹⁴ Data.gov serves as a hub that integrates and provides access to a wide range of datasets held not only by federal agencies but also by state and local governments, facilitating data discovery, download, and reuse. This represents a leading example of how public data openness has been implemented through a platform,

¹³ The Freedom of Information Act (FOIA), 5 U.S.C. § 552.

¹⁴ The OPEN Government Data Act, now statutory, requires agencies to publish open data in standardized, machine-readable formats and register metadata with Data.gov, institutionalizing the platform's role.

ensuring that legal obligations translate into practical and meaningful utilization.

Another defining feature of U.S. public data policy is the emergence of a data broker market. In the United States, an industry has developed around the aggregation, analysis, and brokerage of public and private data, demonstrating how public data can generate new economic value through commercial reuse. While debates concerning data privacy and consumer protection continue, it is nevertheless clear that the United States has fostered a data industry ecosystem by adopting a policy stance that, in principle, permits the commercial use of public data.

The U.S. experience offers important implications for the Lao PDR. It suggests that a data-driven ecosystem can only be established when public data is recognized not merely as administrative information, but as a public asset to which access rights are guaranteed, and when commercial reuse is institutionally permitted within a clear legal framework.

4.2.2. European Union (EU)

The European Union (EU) regards the data economy as a core foundation of the Digital Single Market and has developed a multi-layered and systematic data legislative framework that simultaneously encompasses platform regulation and public data openness. Rather than relying on a single statute, the EU approach is characterized by the careful separation of distinct policy objectives—such as market competition, platform accountability, and public data openness—into individual legal instruments, while collectively designing them to foster fair data circulation and a trustworthy data utilization environment.

First, the Digital Markets Act (DMA)¹⁵ aims to prevent the abuse of market dominance by large platform operators that exert structural influence on the market, designated as “gatekeepers.” The DMA restricts practices such as exclusive access to and combination of platform-held data, self-preferencing of a platform's own services, and exclusionary conduct toward competing businesses. While the DMA does not directly mandate the opening of data, it plays an important role in improving data circulation structures by ensuring fairness in data access and use and by preventing the excessive concentration of data in the hands of a small number of dominant platforms.

In parallel, the Digital Services Act (DSA)¹⁶ focuses on strengthening the social responsibility and transparency of platforms. The DSA establishes obligations related to the handling of illegal content, requirements for transparency regarding algorithmic

¹⁵ Regulation (EU) 2022/1925 of the European Parliament and of the Council. On contestable and fair markets in the digital sector (Digital Markets Act).

¹⁶ Regulation (EU) 2022/2065. On a Single Market for Digital Services (Digital Services Act)

functioning, and safeguards for user protection. Although it does not directly regulate public data policy, the DSA complements open data initiatives by institutionally ensuring transparency and trust in data processing and algorithmic use.

The key legal instrument that directly governs public data policy in the EU is the revised Open Data Directive (2019).¹⁷ This directive defines the opening of public sector data not merely as a policy recommendation but as a legal right, and clearly establishes the principle that public data should, in principle, be provided in machine-readable formats and made available free of charge or at marginal cost. Of particular significance is the introduction of the concept of High-Value Datasets, under which categories of data with significant economic and social impact are policy-wise identified and their priority disclosure is mandated. This represents a strategic approach that emphasizes phased expansion based on policy priorities, rather than indiscriminate, across-the-board data disclosure.

The EU experience offers important implications for the Lao PDR. It demonstrates that, rather than pursuing comprehensive and simultaneous disclosure of all public data, a more realistic and sustainable strategy is to first identify high-value public datasets suitable for early disclosure, build institutional and platform-based frameworks around them, and then gradually expand the scope of openness over time.

4.2.3. China

China has adopted an approach in its data policy that prioritizes control and protection over openness, while at the same time gradually expanding the scope for public data utilization at the level of national strategy. This dual structure reflects a political and administrative environment in which concerns over national security and social stability carry significant weight.

China has established a robust regulatory framework governing data processing through the enactment of the Data Security Law (2021) and the Personal Information Protection Law (PIPL). These statutes set forth stringent requirements for data classification and grading, restrictions on the cross-border transfer of important data, and strict conditions for the processing of personal information, thereby positioning data protection and control as paramount policy objectives.

Nevertheless, China has also recognized the importance of public data utilization and has pursued public data openness within a controlled scope through instruments such as the Measures for the Administration of Government Information Disclosure and the

¹⁷ Directive (EU) 2019/1024. On open data and the re-use of public sector information (Open Data Directive); European Commission (2020), A European strategy for data, COM/2020/66 final.

Public Data Resource Development Guidelines.¹⁸ These frameworks are designed not to mandate comprehensive public data disclosure, but rather to promote data utilization within boundaries explicitly authorized by the State.

The Chinese experience demonstrates that open data policy does not necessarily imply comprehensive liberalization, and that public data governance can take diverse forms depending on a country's political, security, and social context. At the same time, it also suggests that excessive restrictions on public data openness—justified by data security and personal data protection concerns—may constrain data utilization and innovation.

4.2.4. Southeast Asia

Southeast Asian countries have adopted diverse legal and institutional approaches to promote the openness and utilization of public data in ways that reflect their respective administrative systems and stages of development. Several countries have already established explicit public data laws or equivalent legal bases. The experiences of these countries provide particularly valuable lessons for the Lao PDR, which is characterized by a centralized administrative structure and is still in the process of building foundational institutions.

Singapore represents a notable case in which effective public data governance has been realized without the enactment of a single, comprehensive Public Data Act. Instead, Singapore has implemented a robust framework based on administrative rules and accountability-centered operational structures. Through the national integrated public data portal, Data.gov.sg, government agencies are assigned clear responsibilities for data provision, while data quality, standards, update cycles, and conditions for reuse are systematically managed through administrative guidelines and agency-level obligations. This demonstrates that open data policy can be effectively institutionalized through executive orders and operational norms even prior to formal legislation, offering a practical reference for the Lao PDR as it considers its initial institutional design.

Indonesia has pursued a public data policy within a more explicit legal framework. Through the Public Information Disclosure Act,¹⁹ it has legally guaranteed the public's right of access to information and clearly defined the disclosure obligations of public institutions, thereby establishing a rights-based foundation for public data openness. In addition, the One Data Indonesia Policy²⁰ mandates data standardization,

¹⁸ 中华人民共和国政府信息公开条例 (March 6, 2025); Open Government Information Regulations of the P.R.C. (2019). China Law Translate. <https://www.chinalawtranslate.com>.

¹⁹ Public Information Disclosure Act, Law No. 14 of 2008.

²⁰ One Data Indonesia Policy, Presidential Regulation No. 39/2019. Open Government Partnership https://www.opengovpartnership.org/members/indonesia/commitments/ID0113/?utm_source=chatgpt.com

interoperability, and a centralized coordination mechanism, further advancing the management and provision of public data. This model—combining rights-based legislation with technical and administrative governance instruments—serves as a directly relevant point of comparison for the design of a Public Data Act in Lao PDR.

The Philippines has chosen to operate its public data and information disclosure regime primarily through executive orders rather than a comprehensive public data statute. Executive Orders for Public Data Access²¹ establishes disclosure obligations within the executive branch and enhances public access and participation through the operation of a public data portal. Although a comprehensive statutory framework is absent, the Philippine experience of accumulating policy effects through executive instruments provides a meaningful transitional model that the Lao PDR may draw upon either prior to, or immediately following, the enactment of a public data law.

Thailand has institutionally guaranteed both the disclosure obligations of public agencies and the public's right of access through the Official Information Act.²² Building upon this foundation, Thailand has gradually expanded its approach from information disclosure toward a broader public data management and utilization framework, led by the Digital Government Development Agency (DGA) and supported by the establishment of a national public data portal. Thailand's experience illustrates the effectiveness of a phased approach that begins with an information disclosure law and progressively advances toward a comprehensive public data policy.

Taken together, the experiences of Southeast Asian countries offer several common implications for the development of public data legislation in Lao PDR. First, many countries have initially institutionalized public data policy through executive orders or information disclosure laws before progressively upgrading their legal and institutional frameworks. Second, the existence of a central coordinating body and clear data standards and guidelines plays a decisive role in ensuring policy effectiveness. Third, a phased approach that prioritizes selected datasets for early disclosure, rather than pursuing blanket disclosure of all data, has proven to be more sustainable. From this perspective, the Lao PDR's strategy of enacting a Public Data Act followed by the phased implementation of the system through Prime Ministerial Decrees and subordinate regulations can be assessed as being well aligned with best practices observed across Southeast Asia.

²¹ Executive Orders for Public Data Access, EO No. 2, 2016.

²² Official Information Act, B.E. 2540, 1997.

4.3. Legislative Developments in Korea

4.3.1. Overview of Data Law System

With the advancement of the digital era characterized by the Fourth Industrial Revolution and artificial intelligence (AI), data has emerged as a core foundational resource across the economy and society. Data is no longer perceived merely as a collection of information, but rather as a strategic asset that generates new value and services through big data analytics and AI training. Accordingly, legal and institutional frameworks encompassing the production, protection, utilization, and transaction of data are being rapidly developed and refined. In particular, following the implementation of the so-called “Three Data Laws,” legislation aimed at promoting the safe use and transaction of data has gained momentum, leading to the rapid formation of a multi-layered data legal framework in Korea within a relatively short period of time.²³

At the center of these developments is the Framework Act on the Promotion of the Data Industry and the Utilization of Data, enacted in October 2021 (hereinafter, the “Data Industry Act”). The Data Industry Act serves as a comprehensive framework law covering the entire data lifecycle, including data production, combination, analysis, transaction, and utilization. It systematically regulates key institutional components of the data economy, such as the establishment of a data governance framework, the guarantee of data combination and portability rights, the coordination between data protection and data utilization, liability relief (safe harbor) for data analysis activities, and the operation of data exchanges. In this respect, the Act holds significant international legislative importance as the world’s first comprehensive “basic data law” designed to promote the transaction and utilization of private-sector data through an integrated policy framework.

In parallel with the Data Industry Act, substantial reforms were also undertaken in the area of data protection. The amended Unfair Competition Prevention and Trade Secret Protection Act (2021) introduced “data misappropriation” as a new category of unfair competition, thereby establishing a legal basis for regulating the unauthorized collection, use, and provision of data. This amendment is widely regarded as a major turning point in the data protection regime, as it extended legal protection beyond structured data such as databases—traditionally protected under copyright law—to include unstructured data that had previously remained in a regulatory blind spot.

Meanwhile, in January 2022, the Act on the Promotion of Industrial Digital Transformation was enacted to institutionally support digital transformation across

²³ See further details in Seung-Woo Son. (2023). “Review of the Consistency among Data-Related Laws and Legislative Challenges,” *Regulatory Law Review* (New Industry Edition), Vol. 23-1, Korea Legislation Research Institute.

industries. This Act aims to promote the generation and utilization of industrial data and the industrial application of intelligent information technologies. Notably, it provides entities that generate industrial data with the right to use and derive profits from such data, thereby institutionally supporting the realization of the economic value of industrial data. This reflects a legislative recognition of data utilization not merely as information use, but as a rights-based issue directly linked to industrial competitiveness.

In the public sector, legal frameworks to promote data utilization have also been established in a phased manner. The Act on the Promotion of the Provision and Use of Public Data (2013) laid the foundational framework for opening and providing data held by public institutions to the public and private sectors. Subsequently, the Act on the Promotion of Data-Based Administration (2020) institutionalized data-driven decision-making across public administration, expanding the scope of public data utilization into policy-making and administrative processes. More recently, the enactment of the Act on the Management and Utilization of Industrial Property Information (2024) has provided a legal basis for the strategic use of industrial property data, such as patent and R&D information, while discussions on the enactment of a dedicated law governing research data are also underway.

As a result, Korea's data legal framework has expanded and become increasingly sophisticated across multiple domains, including data protection, data transactions, industrial utilization, and public administration. At the same time, however, this rapid legislative expansion has given rise to structural challenges, such as conflicts, overlaps, and ambiguities in the scope of application among different statutes. Divergent legal rules regarding the definition of data, attribution of rights, permissible scope of utilization, and levels of protection have increased the risk of confusion in legal interpretation and enforcement in practice.

These challenges can be attributed to several factors, including insufficient review of consistency between newly proposed legislation and existing laws during the legislative process, inter-ministerial consultations that remained largely procedural rather than substantively coordinated, and competition among government ministries over policy jurisdiction in the data domain. As a consequence, although the data legal framework has expanded rapidly, an integrated governance structure at the system-wide level has yet to be fully established.

Korea's experience suggests that, in the transition to a data-driven society, the enactment of a single statute is insufficient. Instead, it is necessary to design the overall legal system in a coherent manner, ensuring consistency and clear allocation of roles across laws governing data protection, utilization, transactions, and public-sector use. This experience provides an important comparative reference for the Lao PDR as it considers the enactment of a Public Data Act, particularly in preventing potential overlaps and institutional confusion during future expansion of its data-related legal framework.

4.3.2. Public Data Act

The Act on the Promotion of the Provision and Use of Public Data of the Republic of Korea (hereinafter, the “Public Data Act”), enacted in June 2013, has since established itself as the core statute institutionally underpinning public data openness. The background to the enactment of the Public Data Act can be summarized in four main factors. First, as the digitalization of administrative information advanced, data accumulated within the public sector came to be recognized as a resource with significant potential for private-sector services and industrial use. Second, the implementation of the Government 3.0 initiative and broader digital government policies around 2013 heightened public demand for “open government.”²⁴ Third, structural limitations were identified in the existing information disclosure regime, which proved insufficient to ensure proactive public data openness and to promote reuse. Fourth, international organizations such as the OECD and the European Union emphasized public data openness as a strategic infrastructure for revitalizing the data economy, creating the need for Korea to align with emerging global trends.

The Public Data Act consists of four chapters and approximately forty provisions, regulating the entire lifecycle of public data openness and operation, including the definition of public data, policy formulation, data registration and management, procedures for data provision, and the protection of users' rights. The Act first defines the scope of public data as data generated or managed by public institutions in the course of performing their official duties, and establishes the principle that data held by public institutions should, in principle, be disclosed, thereby institutionalizing the legal obligation to provide public data. Where disclosure is restricted, public institutions are required to clearly state the grounds for non-disclosure. Members of the public may request the provision of data, and public institutions are obliged to respond within statutory time limits. Furthermore, the registration and provision of public data are designed not to be limited to simple file disclosure, but to include a variety of methods—such as Open APIs, portal-based access, and link provision—in order to enhance accessibility and reusability.

The Public Data Act also provides a legal basis for public data quality management, standardization, and utilization support. Through requirements for metadata management, data cleansing, application of standard formats, and the establishment of quality management standards, the Act seeks to ensure the practical usability of public data. In addition, by incorporating support measures such as technical assistance, competitions, and consulting programs for small and medium-sized enterprises and startups, the Act actively promotes private-sector utilization of public data. Moreover, the

²⁴ See Chang-Woon Lee. (2014). Government 3.0, National Archives Portal.

Act explicitly establishes the legal foundation for operating the integrated public data portal (data.go.kr), thereby systematizing government-wide functions for data search, request, download, and API connectivity.

To implement the Act, the central government and dedicated supporting organizations operate a range of functions related to public data openness, including policy planning and coordination, technical support, data quality verification, and public data licensing management. This organizational support ensures that the Public Data Act functions not merely as a declaratory legal norm, but as an effective and operational framework in practice.

4.3.3. Current Status of Public Data Opening

The current status of public data openness in Korea as of November 2025 is as follows:

- Total number of registered datasets: more than approximately 3,250,000
- Number of Open API services: more than approximately 18,500
- Average daily users of the Public Data Portal: more than approximately 120,000
- Annual volume of API calls: more than approximately 20 billion
- Growth rate of private-sector utilization cases: approximately 22% increase year-on-year

In particular, following the COVID-19 pandemic, demand for real-time transportation, environmental, and health-related data increased significantly, leading to a rapid expansion of Open API-based data services. APIs providing real estate transaction prices, real-time public transportation information, meteorological data from the Korea Meteorological Administration, and health and welfare statistics are now widely utilized across private services as well as research and industrial applications.

This level of openness is assessed as the result of more than a decade of organic interaction among legal frameworks, institutional arrangements, portal infrastructure, and utilization support policies since the introduction of the Public Data Act. In particular, the scale of public data disclosure and the proliferation of API-based real-time data services demonstrate that public data has become firmly established as foundational infrastructure for everyday services and industrial innovation.

4.3.4. Use Cases of Public Data

The utilization of public data has generated meaningful outcomes both within the public sector and across the private sector. A wide range of cases in which public data

functions as a foundation for everyday services, safety policies, and digital industrial infrastructure demonstrate how public data policy can create tangible social and economic value.

1) Public Sector Use Cases

① Improvement of Everyday Public Services

Public data is applied across a variety of daily services, including information on bus and subway arrival times, congestion levels at public parking facilities, real estate transaction prices, and inventories of masks and public health supplies.²⁵ For example, real-time bus arrival and transportation information provided through smartphone applications has significantly improved convenience for public transit users. Such services directly contribute to enhancing the efficiency of public service delivery and improving the quality of life for citizens.

② Strengthening Safety and Disaster Response

Public data has also been used as a core instrument to substantially improve policy effectiveness in the areas of maritime safety and disaster response. A representative example demonstrating the impact of big data analytics on reducing maritime accident rates and fatalities is outlined below.²⁶

Between 2017 and 2019, the fatality rate associated with coastal accidents was approximately 17%, nearly ten times higher than the fatality rate for traffic accidents during the same period. These statistics clearly highlighted the need for systematic policy and programmatic interventions to reduce coastal accidents, while also underscoring the importance of securing objective evidence to support policy design.

In response, the Korea Coast Guard analyzed and integrated various datasets held by public institutions, including population flow data, historical maritime distress and accident records, locations of local police substations, and patrol log data. Based on the results of this analysis, high-risk maritime zones were precisely identified. Rescue substations and safety facilities were then strategically installed in these areas, alongside efforts to enhance maritime safety services and implement field-oriented safety education programs.

Through this data-driven policy implementation, tangible improvements in maritime accident prevention were achieved, and overall levels of maritime safety were significantly enhanced. This case represents a best-practice example of how public data

²⁵ SEOUL Metropolitan Government. (2025). Seoul Open Data Plaza White Paper. The current status of Seoul's data disclosure can be viewed on data.seoul.go.kr.

²⁶ Korea Coast Guard. (2022). Construction of a Big Data Platform and Pilot Operation of a Coastal Accident Big Data Predictive Model; Maritime Distress Accidents and Rescue Status dataset, retrieved from Public Data Portal.

and big data analytics can function as a scientific and empirical foundation for safety and disaster response policies.

2) Private Sector Use Cases

① Real Estate Service Platforms

Real estate transaction data provided by the Ministry of Land, Infrastructure and Transport is widely used by private-sector real estate platforms for price information and mapping services. A representative example is the visualization of property listings based on actual transaction prices, which has become an essential decision-support tool for the public in real estate transactions. This case illustrates how public data can reduce information asymmetry in private markets and promote fair competition.

② Weather Data–Based Services

Observational and forecasting data produced by the Korea Meteorological Administration is utilized in a wide range of private-sector applications, including weather services, agricultural forecasting systems, insurance products, and disaster prediction applications. Services such as fine dust alerts, umbrella recommendation tools, and agricultural prediction models reprocess and expand public meteorological data to deliver value-added services.

③ Real-Time Transportation API Services

Real-time public transportation APIs provided by the Seoul Metropolitan Government are widely used by private mapping applications and transportation services. Mobile services that enable users to track the real-time location of buses and subways or receive optimal route guidance contribute to easing traffic congestion and enhancing user convenience. These cases exemplify how public data extends beyond simple information provision to serve as foundational data for AI-driven and smart city services.

3) Social and Industrial Impacts

The utilization of public data contributes not only to improving the quality of public services but also to the expansion of a data-driven industrial ecosystem. Public data broadens entrepreneurial opportunities for startups and small and medium-sized enterprises, while providing the foundation for diverse data-based business models. Furthermore, the integration of public- and private-sector data fosters public–private collaboration ecosystems and drives the growth of the data economy.

As Lao PDR considers the introduction of a Public Data Act and the design of related policies, these public- and private-sector use cases can serve as valuable reference points for institutional design. In particular, the policy message that public data openness can directly lead to data-driven innovation, job creation, and the revitalization

of the digital economy provides a persuasive comparative rationale for strengthening the legislative objectives of a Public Data Act.

4.3.5. Public Data Licensing Policy

The effectiveness of an open data policy is not determined merely by whether data is disclosed. A more critical factor is whether the conditions and scope under which disclosed public data may be reused are clearly defined. A public data licensing policy serves as a core institutional mechanism that eliminates legal uncertainty for data users while providing public institutions with responsible standards for data provision, thereby establishing trust and predictability across the public data utilization ecosystem.

To institutionally promote the reuse of public data, Korea has introduced the Korea Open Government License (KOGL) system.²⁷ The KOGL framework is designed to enable users to readily understand the permissible scope of data use through standardized license markings attached to public data. KOGL licenses are classified into four types (Type 1 to Type 4), each differentiated by conditions relating to attribution requirements, permission for commercial use, and allowance for the creation of derivative works, including modification and transformation.

The most significant feature of the KOGL system is that it functions not merely as an informational label, but as a free-use licensing mechanism. Public data bearing a KOGL mark is provided under a form of blanket authorization, allowing users to utilize the data in accordance with the specified license conditions without the need to individually contact public institutions to seek permission. In this sense, the KOGL license operates as a standardized pre-authorized use mechanism, replacing case-by-case and ex post approval procedures traditionally required of public institutions.

This structure substantially reduces the administrative burdens and legal uncertainties that have frequently arisen in the process of public data utilization. Users can immediately make use of public data without entering into separate contracts or undergoing approval procedures, while public institutions are relieved from repetitive authorization tasks and can instead concentrate their administrative capacity on data provision, quality management, and the identification of high-value datasets. As a result, the reuse of public data is transformed from an exceptional practice into a routine, scalable, and large-scale activity.

²⁷ Use Terms Guide for Korea Open Government License (KOGL) <<https://www.kogl.or.kr>>

Figure 13 Types of Public Nuri License

Type of License	License Indication Mark	Scope of License
[Type 1] Attribution		- Attribution - Commercial and Non-Commercial Use Allowed - Derivatives and Adaptations Allowed
[Type 2] Attribution + Non-Commercial Use Only		- Attribution - Non-Commercial Use Only - Derivatives and Adaptations Allowed
[Type 3] Attribution + No Derivatives		- Attribution - Commercial and Non-Commercial Use Allowed - No Derivatives or Adaptations
[Type 4] Attribution + Non-Commercial Use Only + No Derivatives		- Attribution - Non-Commercial Use Only - No Derivatives or Adaptations

Specifically, the Type 1 (Attribution) license represents the most open form of licensing. Subject only to attribution requirements, it permits both commercial and non-commercial use, as well as the modification, transformation, processing of data, and the creation of derivative works. This license type maximizes the economic spillover effects of public data by enabling a wide range of uses, including startup service development, corporate data analytics, and the use of public data as training datasets for AI systems.

The Type 2 (Attribution + Non-Commercial Use Only) license restricts commercial use while allowing non-commercial use and data modification. This type is designed to encourage public-interest uses such as academic research, education, and civil society activities.

The Type 3 (Attribution + No Derivatives) license permits commercial use but prohibits data modification and the creation of derivative works. This license is particularly suitable for datasets—such as statistical or reference information—where accuracy, integrity, and consistency are of paramount importance.

The Type 4 (Attribution + Non-Commercial Use Only + No Derivatives) license is the most restrictive type and may be applied on an exceptional basis to datasets with heightened sensitivity.

The principal advantage of this tiered licensing framework lies in its flexibility: rather than applying uniform usage conditions to all public data, it allows the scope of permissible use to be adjusted according to the nature of the data and specific policy objectives. Public data openness does not equate to unconditional free use; rather, it is a process of institutionally designing a balance between openness and protection, utilization and accountability, through clear and differentiated licensing.

An important implication for the Lao PDR's public data policy is that, even where public data is formally opened, unclear authorization procedures or reliance on case-by-case

institutional approvals may discourage private-sector use due to perceived legal risks. Accordingly, as the Lao PDR enacts a Public Data Act and develops a public data platform, it is essential to introduce a standardized free-use licensing framework similar to the KOGIL system. At the initial stage, broadly permissive licenses should be applied as the general rule, while more restrictive licenses should be used only on an exceptional basis for data related to national security, personal data protection, or public order.

4.4. Policy and Legal Implications for Lao PDR

4.4.1. Policy Recommendations

This report presents the following policy recommendations.

First, the enactment of a Public Data Act should be treated as the highest priority. Although the Lao PDR already has laws related to data, there is no dedicated legal basis governing the provision, management, and reuse of public data. Without addressing this legislative gap, public data policy is likely to remain limited to individual projects or administrative guidelines. The enactment of a Public Data Act would establish a firm foundation for policy implementation and ensure the consistency, predictability, and sustainability of public data policy.

Second, a key future task lies in the joint development of enforcement decrees, subordinate regulations, and practical implementation manuals. Enforcement decrees that concretize matters delegated by the Act, together with detailed technical and operational standards, should be developed in a phased manner through cooperation between Korea and the Lao PDR. This approach would enhance local adaptability of the 制度 and strengthen implementation capacity.

Third, the development of a national public data portal should be pursued in parallel as a medium- to long-term objective. An open data policy cannot be realized through legislation alone; it requires platform infrastructure through which data is actually provided and utilized. A government-wide public data portal can integrate datasets held by public institutions and present them together with standardized formats, metadata, and licensing information, thereby significantly improving accessibility and reusability of public data. Such a portal would serve both as a key enforcement mechanism for the Public Data Act and as core infrastructure supporting future AI training datasets and data-driven service creation.

Fourth, a phased implementation roadmap should be maintained. Even after the enactment of a Public Data Act, it is neither necessary nor advisable to attempt

immediate disclosure of all public data. Instead, a gradual expansion strategy should be adopted, beginning with priority datasets that are policy-ready and technically prepared. This approach represents a realistic method of ensuring stable institutional settlement while managing administrative burdens and risks.

Fifth, public data should be recognized as infrastructure for the digital economy. Public data policy should extend beyond enhancing administrative transparency and lead to private-sector innovation, entrepreneurship, and strengthened industrial competitiveness. To this end, the commercial reuse of public data should, in principle, be permitted, and legal uncertainty should be eliminated through a clear and standardized licensing framework. When public data is recognized as foundational infrastructure for the digital economy and the AI ecosystem, a Public Data Act can function not merely as an administrative statute, but as a core instrument of national development strategy.

Sixth, strengthening cooperation between the central government and local governments should be recognized as a critical implementation condition. In the Lao PDR, a significant portion of public data is generated, accumulated, and managed at the provincial and local levels. However, limited awareness of public data policy and the absence of clear coordination mechanisms have hindered effective cooperation between central and local governments. To address this challenge, the central government should provide clear policy guidance, standardized procedures, and technical support to local governments, while legally mandating their participation in public data provision. Strengthening central–local cooperation is essential to ensure nationwide consistency, reduce regional disparities, and achieve the practical effectiveness of public data policy.

4.4.2. Structure and Core Provisions of the Draft Public Data Act of Lao PDR

The Draft Public Data Act of the Lao PDR should be designed as a general framework law of a foundational nature, clearly positioning public data as a national public asset and regulating the fundamental rights and obligations related to its provision, management, and reuse. To this end, the Act must be structured in a systematic manner capable of ensuring the continuity and enforceability of public data policy.

First, the draft legislation should begin with provisions on purpose, definitions, and basic principles, thereby clearly establishing the direction and scope of the public data open policy. The purpose clause should expressly state that the opening and utilization of public data are not limited to enhancing administrative transparency, but are intended to contribute to the realization of digital government, the promotion of private-sector innovation, and the development of a data-driven economy. The definitions clause should clearly define key concepts such as public data, public institutions, reuse, and

public data platforms, in order to minimize uncertainty regarding the scope of application of the Act.

Second, the draft Act should incorporate the public data governance structure as a core pillar. It should designate a central administrative authority with overall responsibility and establish a framework for the allocation of roles and inter-ministerial coordination, so that public data policy does not depend on the discretion of individual agencies or ad hoc projects. In addition, it is desirable for the Act to provide a legal basis for the establishment of a dedicated body or coordinating council responsible for the planning, coordination, and monitoring of public data policy.

Third, the draft Act should include a planning and evaluation framework for public data policy. It should stipulate the legal basis for the formulation of a mid- to long-term master plan for public data, as well as annual implementation plans, and require regular monitoring and evaluation of their implementation. This framework serves as a key mechanism to ensure that public data opening does not remain a merely declaratory objective, but is translated into effective execution.

Fourth, the draft Act should set out the basic framework for procedures related to the provision and management of public data. Data held by public institutions should, in principle, be designated as subject to disclosure, while grounds for non-disclosure should be recognized only on a limited basis in accordance with clear legal criteria, such as the protection of personal data, national security, and public order. The Act should further establish fundamental principles regarding data provision methods (including Open APIs, file-based provision, and platform linkage), quality management, standardization, and metadata management, while delegating detailed technical standards to enforcement decrees and subordinate regulations.

Fifth, the draft Act should balance the promotion of public data utilization with appropriate safeguards. As a general rule, the Act should permit both commercial and non-commercial reuse of public data, while requiring the use of standardized licensing schemes to clearly define conditions of use. At the same time, it should provide minimum protective norms addressing issues such as data misuse, infringement of personal data, and the allocation of liability, thereby institutionally balancing openness and protection.

Table 16 Public Data Act of Laos—Structure Table

Chapter	Article	Title
I. GENERAL PROVISIONS	1	Purpose
	2	Definitions
	3	Basic Principles
II. ESTABLISHMENT, ETC., OF PUBLIC DATA POLICIES	4	Public Data Strategy Committee
	5	Master Plans for Promoting Provision and Use of Public Data
	6	Evaluation of Status of Provision and Management of Public Data
	7	Guidelines for Management of Public Data
	8	Officers Responsible for Providing Public Data
	9	Public Data Utilization Support Center
	10	Promoting Use of Public Data
	11	Cooperation with Private Sector
	12	International Cooperation
III. REGISTRATION, ETC., OF PUBLIC DATA AND ESTABLISHMENT OF FOUNDATION	13	Scope of Public Data to be Released
	14	Registration of Lists of Public Data
	15	Announcement of Information on Lists of Public Data
	16	Exclusion of Public Data from Lists
	17	Public Data Portal
	18	Quality Control
	19	Standardization
	20	Establishment of Foundation for Provision of Public Data
	21	Education & Training
IV. PROCEDURES, ETC., FOR PROVISION OF PUBLIC DATA	22	Provision Procedures
	23	Suspension of Provision
	24	Immunity

Draft Public Data Act of Lao PDR (Full Text)

CHAPTER I GENERAL PROVISIONS

Article 1 (Purpose)

The purpose of this Act is to establish the basic legal framework for the provision, management, and use of public data held by public institutions of Lao PDR, in order to enhance transparency and accountability of government, improve administrative efficiency, and promote innovation and sustainable development of the digital economy.

Article 2 (Definitions)

For the purposes of this Act, the following terms shall have the meanings ascribed to them below:

1. “Public data” means data or information created, acquired, or managed by public institutions in the course of performing their official duties.
2. “Public institution” means central administrative agencies, local governments, public organizations, and state-owned entities prescribed by Prime Ministerial Regulation.
3. “Provision of public data” means making public data accessible for use or reuse through digital or other appropriate means.
4. “Machine-readable form” means any form of data, the particulars or internal structure of which can be ascertained, or modified, converted, extracted, or otherwise processed by software;
5. “Public data portal” means the national integrated online platform for accessing and using public data.
6. “Non-disclosable data” means data that shall not be released due to personal data protection, national security, state secrets, public safety, or other lawful grounds.

Article 3 (Basic Principles)

- (1) Every public institution shall endeavor to enable anyone to readily use public data and shall take measures necessary to promote universal access to the use thereof.
- (2) Every public institution shall guarantee citizens equality in their access to, and use of, public data.

- (3) No public institution shall impede the use of public data disclosed to the general public through information and communications networks, including restricting or blocking user access, except in cases falling under Article 23 (1).
- (4) No public institution shall prohibit or restrict the use of public data for gain, except as otherwise expressly provided for in any other Act or except in cases falling under Article 23 (1).
- (5) Every user shall observe obligations prescribed under statutes and the terms and conditions of use to prevent any infringement of public interests, including national security, or another person's rights, and shall act conscientiously and in good faith when using public data.

CHAPTER II

ESTABLISHMENT, ETC., OF PUBLIC DATA POLICIES

Article 4 (Public Data Strategy Committee)

- (1) In order to deliberate on and coordinate major governmental policies and plans regarding public data and to inspect and evaluate their implementation, a Public Data Strategy Committee (hereinafter referred to as the "Strategy Committee") shall be established under the Prime Minister.
- (2) The Prime Minister shall serve as the Chairperson, and the Strategy Committee shall be composed of not more than 30 members, including the Chairperson.
- (3) The members of the Strategy Committee shall be:
 - 1. Persons prescribed by Prime Ministerial Regulation from among the heads of central administrative agencies, the heads of local governments, and the heads of public institutions;
 - 2. Persons commissioned by the Prime Minister from among those with abundant expertise and experience in the provision and/or use of public data.
- (4) To ensure the efficient operation and support of the Strategy Committee, one secretary shall be appointed, and the Minister of Technology and Communications shall serve as the secretary.
- (5) The term of office of the members commissioned pursuant to subparagraph (2) of paragraph (3) shall be two years, and may be renewed for only one

further term. Provided, however, that a member newly commissioned to fill a vacancy arising due to resignation or other reasons shall serve for the remainder of the predecessor's term.

- (6) The Strategy Committee shall deliberate on the following matters:
 1. Matters concerning the formulation or amendment of the master plan for promoting the provision and use of public data;
 2. Deliberation, resolution, and announcement of the lists of public data to be released;
 3. Matters concerning exclusion of public data from such lists;
 4. Matters concerning improvement of policies and systems related to the provision and use of public data;
 5. Evaluation and inspection of performance in implementing the master plan;
 6. Other matters deemed necessary by the Chairperson in relation to the provision and use of public data.
- (7) Matters necessary for the organization and operation of the Strategy Committee shall be prescribed by Prime Ministerial Regulation.

Article 5 (Master Plans for Promoting Provision and Use of Public Data)

- (1) The Government shall formulate a master plan for promoting the provision and use of public data (hereinafter referred to as “master plan”).
- (2) A master plan shall be formulated by the Minister of Technology and Communications every three years, by integrating plans by fields of the State and local governments, and shall be finalized following deliberation and resolution thereon by the Strategy Committee. The same shall also apply to any amendment to the important matters prescribed by Prime Ministerial Regulation in the master plan.
- (3) Each master plan shall include the following:
 1. Basic objectives of, and direction-setting for promoting the provision and use of public data;
 2. Matters concerning forms and means, in or by which public data is provided;
 3. Status of the registration and use of public data;
 4. Expanding the scope of public data accessible and available;
 5. Matters concerning promoting utilization of public data in the private sector;
 6. Matters concerning the quality control of public data;

7. Matters concerning promoting development of technologies to provide public data;
 8. Matters concerning the improvement of systems and Acts and subordinate statutes regarding public data;
 9. Matters concerning education and training necessary for the management, provision, and use of public data;
 10. Investment and funding plans necessary for the provision and use of public data;
 11. Other matters concerning the management, provision, and use of public data.
- (4) The Minister of Technology and Communications may formulate guidelines for preparing plans by field of the State and local governments through deliberation thereon by the Strategy Committee and notify relevant institutions thereof, and if necessary for preparing the master plan, he/she may request related data from the heads of public institutions.
 - (5) Other matters necessary for the formulation and implementation of master plans shall be prescribed by Prime Ministerial Regulation.

Article 6 (Evaluation of Status of Provision and Management of Public Data)

- (1) The Minister of Technology and Communications shall annually evaluate the status of the provision and management of public data by public institutions, such as the establishment of a foundation for providing such data and the status of provision, as prescribed by Prime Ministerial Regulation.
- (2) The Minister of Technology and Communications shall report the findings from the evaluation in paragraph (1) to the Strategy Committee and the State Council and announce them after notifying the heads of public institutions thereof and shall require the relevant public institutions to take corrective measures, etc., regarding matters recommended by the Strategy Committee for improvement.
- (3) The Minister of Technology and Communications may select and reward any public institution rated exemplary in an evaluation conducted under paragraph (1) or any public official or any executive or employee of a public institution deemed rendered meritorious service in the provision of public data.
- (4) Other matters necessary for conducting evaluation of operational status shall be prescribed by Prime Ministerial Regulation.

Article 7 (Guidelines for Management of Public Data)

The Minister of Technology and Communications shall formulate and announce guidelines for managing public data, in consultation with the Minister of Science and ICT, to efficiently implement policies for the provision of public data; and the he ads of public institutions shall abide by such guidelines.

Article 8 (Officers Responsible for Providing Public Data)

- (1) The head of a public institution shall appoint an officer responsible for exercising overall control over promoting the provision and use of public data (hereinafter referred to as “officer responsible for the provision of public data”) and working-level employees; and he/she shall post such fact on the web site of the institution for ready access to users.
- (2) An officer for the provision of public data and working-level employees shall take charge of the following matters in relation to the affairs of the relevant institution:
 1. Overall coordination of, and support for, public data policies;
 2. Linkage and coordination between public data policies and other policies, plans, etc., of the institution;
 3. Overall control of, and support for, affairs concerning the management, provision, and use of public data;
 4. Quality control of public data;
 5. Other affairs related to the provision of public data.
- (3) If the head of a public institution has appointed or replaced the officer responsible for the provision of public data and working-level employees, he/she shall promptly notify the Minister of Technology and Communications thereof.
- (4) A public institution may have an organization and staff to be solely in charge of its affairs concerning support for the provision and use of public data. In such cases, the organization solely in charge shall closely cooperate with the Public Data Utilization Support Center established under Article 9.

Article 9 (Public Data Utilization Support Center)

- (1) A Public Data Utilization Support Center (hereinafter referred to as the “Utilization Support Center”) shall be established and operated within the National Data Center to support the provision and use of public data.
- (2) The Utilization Support Center shall perform the following functions:

1. Conducting surveys and research on policies and systems for the provision and use of public data;
 2. Conducting surveys and analysis of statistics related to the provision and use of public data;
 3. Supporting the processing and management of public data to be provided;
 4. Supporting the formulation and implementation of the master plan;
 5. Promoting public awareness of the use of public data and supporting business start-ups that utilize public data;
 6. Supporting cooperation with the private sector and international cooperation regarding public data;
 7. Supporting the acquisition of lawful authorization for the use of copyrighted works and other rights necessary to promote the provision and use of public data;
 8. Supporting the registration of lists of public data and the management of such registered information;
 9. Supporting the announcement of lists of public data to be released and providing list-information services;
 10. Building, managing, and promoting the utilization of the public data portal;
 11. Supporting the diagnosis, evaluation, and improvement of the quality of public data;
 12. Supporting the standardization of public data;
 13. Supporting the improvement of forms of providing public data and the establishment of methods for such provision;
 14. Providing education and training related to public data;
 15. Providing consultation on the provision or use of public data and acting as a proxy for the provision thereof;
 16. Other matters necessary to support the efficient provision and active use of public data.
- (3) The Government may provide financial support, within budgetary limits, for the operation of the Utilization Support Center and the performance of the functions under paragraph (2).
- (4) Matters necessary for the Utilization Support Center, other than those provided herein, shall be prescribed by Prime Ministerial Regulation.

Article 10 (Promoting Use of Public Data)

- (1) The Government may promote the following activities to raise citizens' awareness about the use of public data and to promote the use thereof:
 1. Discovery of, and rewards and public relations for success cases regarding the use of public data;
 2. Holding forums and seminars to promote the use of public data;
 3. Other activities necessary to raise citizens' awareness about the use of public data and promotion thereof.
- (2) To facilitate the use of public data, the Government may promote starting up businesses that use public data and provide support necessary for the cultivation and development of business founders.
- (3) Matters necessary for eligibility, methods, procedures, etc., for support referred to in paragraph (2) shall be prescribed by Prime Ministerial Regulation.

Article 11 Cooperation with Private Sector

The head of a public institution may provide services to promote the provision and use of public data in cooperation with individuals, enterprises, organizations, etc.

Article 12 International Cooperation

A public institution may ascertain global trends regarding promoting the provision and use of public data and promote international cooperation in relation to the following:

1. Support for the international exchange of technologies and human resources related to public data;
2. Support for the international standardization of public data and for international collaborative research and development projects;
3. Cooperation with international organizations and foreign governments in relation to public data;
4. Support for international cooperation in the private sector, regarding public data;
5. Other matters for promoting the provision and use of public data.

CHAPTER III

REGISTRATION, ETC., OF PUBLIC DATA AND ESTABLISHMENT OF FOUNDATION FOR PROVISION THEREOF

Article 13 Scope of Public Data to be Released

- (1) The head of a public institution shall provide the public data held or managed by the relevant public institution to the public. Provided, however, that this shall not apply where such public data includes any of the following information:
 1. Information subject to non-disclosure under applicable laws;
 2. Information that includes third-party rights protected under copyright or other applicable laws, for which lawful authorization for use has not been obtained pursuant to such laws.
- (2) Notwithstanding paragraph (1), if the information referred to in the subparagraphs of paragraph (1), is technically separable, the head of the relevant public institution shall exclude such information when providing its public data.
- (3) The Minister of Technology and Communications may propose a plan for obtaining authorization to use the public data excluded from provision, classified as involving any third person's right under paragraph (1) 2, and the heads of public institutions shall take necessary measures according to such plan.

Article 14 Registration of Lists of Public Data

- (1) The head of each public institution shall register a list of public data falling under the jurisdiction of the public institution with the Minister of the Interior and Safety, as prescribed by Prime Ministerial Regulation.
- (2) The Minister of Technology and Communications may examine as to whether any omission exists in the registration pursuant to paragraph (1), and request the relevant head to register a list of omitted public data, if any.
- (3) The Minister of Technology and Communications shall manage and provide information on the lists of public data registered pursuant to paragraphs (1) and (2), upon classifying them by content, form, and subject matter for the convenience of use.
- (4) The Minister of Technology and Communications shall build and operate a registration management system of public data lists on the public data

portal under Article 21 to efficiently implement policies to manage public data systematically and to promote the provision and use thereof.

Article 15 Announcement of Information on Lists of Public Data

- (1) The Strategy Committee shall deliberate and pass a resolution on a list of public data to be released among those included in the lists of public data registered pursuant to Article 14.
- (2) The Minister of Technology and Communications shall compile and announce the lists of public data to be released following deliberation and resolution by the Strategy Committee in paragraph (1), the conditions of use thereof, etc.
- (3) The head of a public institution shall prepare lists, conditions of use, etc., of public data to be released under his/her jurisdiction, which are announced under paragraph (2), for the convenience of users and post them on the web site of the public institution.
- (4) The head of each public institution that holds public data announced pursuant to paragraph (2) shall register such public data on the public data portal under Article 17.
- (5) Other matters necessary for the compilation and announcement of public data lists shall be prescribed by Prime Ministerial Regulation.

Article 16 Exclusion of Public Data from Lists

- (1) The head of a public institution may request the Minister of Technology and Communications to exclude public data from the list thereof, if
 1. The information system for creating and managing the public data or the relevant services are discontinued;
 2. The public data includes information provided in any subparagraph of Article 13 (1), due to the enactment or amendment of law or a change to the relevant service or on other grounds;
 3. The head of the public institution deems it necessary to exclude the public data from the relevant list.
- (2) The Minister of Technology and Communications may refer a request made under paragraph (1) to exclude public data from the list thereof, to the Strategy Committee for deliberation and exclude them from the list following a resolution by the Strategy Committee, and he/she shall, following the Strategy Committee's decision on such exclusion, announce the data to be excluded from the list and the grounds for exclusion for the

convenience of users.

- (3) If the Minister of Technology and Communications determines to exclude public data from the list thereof pursuant to paragraph (2), he/she shall implement such determination immediately after the announcement of such exclusion, except in extenuating circumstances.

Article 17 Public Data Portal

- (1) The Minister of Technology and Communications shall build, manage, and promote the utilization of, an integrated system for provision of public data (hereinafter referred to as “public data portal”) to ensure the efficient provision of such public data.
- (2) The Minister of Technology and Communications may request the heads of public institutions to provide cooperation necessary for building and operating the public data portal, such as linking public data and provision of public data. In such cases, the heads of the public institutions so requested shall comply therewith, except in extenuating circumstances.
- (3) Building, management, and promotion of utilization of public data portals and other necessary matters shall be prescribed by Prime Ministerial Regulation.

Article 18 Quality Control

- (1) The head of a public institution shall take measures necessary to ensure the stable quality control and appropriate level of quality of the public data generated or acquired and managed by the public institution.
- (2) The Minister of Science and ICT and the Minister of Technology and Communications shall establish and implement necessary policies to diagnose, evaluate, and support the improvement of, the quality of public data in order to maintain the quality of such public data at an appropriate level and to promote the provision thereof.
- (3) Pursuant to paragraph (2), the Minister of Technology and Communications may regularly diagnose and evaluate the quality of the public data to be released, which may have substantial follow-on effects on society and the economy, and may publicize the results thereof.
- (4) Other matters necessary for diagnosis, evaluation, etc., of the quality of public data shall be prescribed by Prime Ministerial Regulation.

Article 19 Standardization

- (1) The Minister of Technology and Communications shall formulate and implement standards for the following matters, to promote the provision and use of public data and to manage it more efficiently:
 1. Forms to provide public data and technologies for provision;
 2. A system for classifying provision of public data;
 3. Other matters necessary for promoting the provision and use of public data.
- (2) The head of a public institution shall comply with the standards in paragraph (1), and the Minister of Technology and Communications may investigate whether the head of each public institution complies with the standards and request him/her to take corrective measures, if necessary. Upon receipt of a request to take corrective measures, the head of the public institution shall comply therewith, except in extenuating circumstances.

Article 20 Establishment of Foundation for Provision of Public Data

- (1) The head of each public institution shall endeavor to maintain public data in a machine-readable form to ensure the efficient use thereof.
- (2) The head of each public institution shall devise means to provide public data utilizing various information technologies to ensure that such public data is accessible and available to users.
- (3) The Government may provide administrative, technical, and financial support necessary to improve the forms to provide public data and to devise means for provision thereof under paragraphs (1) and (2).

Article 21 Education & Training

- (1) The Minister of Technology and Communications shall formulate education and training policies to improve the expertise and ability of public officials, executives, and employees of public institutions engaged in managing and providing public data.
- (2) The Government may conduct user education to promote the sound use of public data and to prevent the misuse or abuse of public data that may impair public interest or citizens' rights and interests.
- (3) Other matters necessary for conducting education and training about public data shall be prescribed by Prime Ministerial Regulation.

CHAPTER IV

PROCEDURES, ETC., FOR PROVISION OF PUBLIC DATA

Article 22 Provision Procedures

- (1) Any person who intends to use public data may obtain such public data from the competent public institution, the public data portal, etc., if such public data is included in public data releases announced under Article 15. However, where the relevant public data is not included in the disclosed list of public data subject to provision, the person seeking to use such data shall separately apply for provision to the head of the competent public institution or to the Data Utilization Support Center.
- (2) No head of any public institution shall refuse to provide public data on grounds that such public data is included in the scope of services that the public institution is developing and providing or plans to develop.
- (3) The head of a public institution has no duty to provide public data by creating, altering, processing, summarizing, or extracting it additionally, although requested so by a user.
- (4) Other matters necessary for the provision of public data shall be prescribed by Prime Ministerial Regulation.

Article 23 Suspension of Provision

- (1) The head of a public institution may suspend the provision of public data, if:
 1. A user is likely to substantially hinder the inherent functions of the public institution due to a violation of any of the conditions of use of public data announced under Article 15;
 2. The use of the public data substantially infringes on any third person's right;
 3. The public data is used in a crime or other offence;
 4. The provision of the public data is inappropriate for the management and use thereof, as determined by the Strategic Committee under Article 4.
- (2) If the head of a public institution requests that public data be excluded from the list thereof to the Minister of Technology and Communications on grounds of any of the subparagraphs of Article 16 (1), he/she may take measures to suspend the provision of the public data prior to deliberation and resolution by the Strategy Committee.
- (3) If the provision of public data is suspended under paragraph (1), the relevant user may be provided with such data pursuant to Article 26 after

the ground for suspension ceases.

- (4) Procedures for, and methods of suspending the provision of public data and other necessary matters shall be prescribed by Prime Ministerial Regulation.

Article 24 Immunity

- (1) With respect to the provision of public data, any relevant public institution and public officials affiliated therewith and executives officers and employees shall be exempted from any civil or criminal liability for losses sustained by users or third persons on grounds of the quality of the public data (excluding cases of loss incurred intentionally or by gross negligence); the exclusion of the public data from the list under Article 16; the suspension of the provision of public data under Article 23; the temporary suspension of the provision of public data for business reasons, etc.
- (2) If the relevant public official, executive, or employee has conscientiously performed their duties in compliance with the procedures under this Act, no one shall be accorded any unfavorable treatment under the State Public Officials Act and other statutes.
- (3) If public data involving any third person's right is provided to a user, the user shall not be liable for any loss sustained by the third person who holds the right: Provided, That this shall not apply to any person who uses public data foreknowing that the public data involves a third person's right.

Convergence of Visualization of Laos-Korea Statistical Data

5.1. Proposal Goal

Establishing infrastructure for data economic cooperation and expanding synergy through linking Korea-Laos statistical data.

- 1) Rapid dissemination of statistical information on industrial success and digital economy cases of both countries.
- 2) Providing reference materials to domestic industries and mutually advancing companies
- 3) Proposing a plan for exchanging representative and important national statistics.

The goal is to propose new measures for data economy cooperation and digital economy development through a special method of connecting statistical data from both countries, and to implement pilot cases for other economic cooperation. In particular, by quickly sharing statistical data that compiles various current status information on successful industrial fields in both countries, the goal is to enable companies and institutions seeking to enter each other's countries to easily obtain market research information and the latest current status data.

Furthermore, by sharing information not only with Laos and Korea, but also with neighboring countries with whom we have frequent economic and trade exchanges, we aim to establish a foundation for more beneficial statistical information sharing. There's a famous saying, "He who controls statistics controls the world." The vast amount of information produced by a country is difficult to interpret and reflect in policy unless it's organized in statistical form. This saying emphasizes the importance of effectively utilizing statistics to develop sound policies.

The reality is that failing to properly manage the diverse and massive amount of data produced daily, especially digital information, can lead to difficult national management

and policy miscalculations. It's a well-known fact that the ability to manage and interpret digital information has become a crucial capability for national governance. If businesses and individuals are likened to trees, a nation can be likened to a vast forest.

National governance is directly proportional to the ability to see this forest. Modern technology has advanced the devices and software tools needed to collect, store, and process data. The field of interpreting and utilizing this data, along with the use of artificial intelligence, holds limitless potential.

Furthermore, unlike manufacturing or advanced industries, the SW field is an area where technology and human resources can be easily exchanged between developed and developing countries, and where the gap between developed and developing countries can be minimized relatively quickly through strengthening human resources.

It's known that vision, one of the five senses, accounts for 90% of information gathering. This highlights the critical importance of visually gathering information, but it also means that the data we acquire is often trusted without much reinterpretation. Effectively conveying data visually is a surprisingly important factor in data-driven decision-making.

In a comprehensive view, the utilization of statistical data and its visual presentation are crucial for various national management fields, and should be considered as an infrastructure that ensures efficiency and speed, as well as competitiveness. Therefore, we would like to emphasize this and propose a proposal in this area of research on the Lao digital economy.

5.2. Background

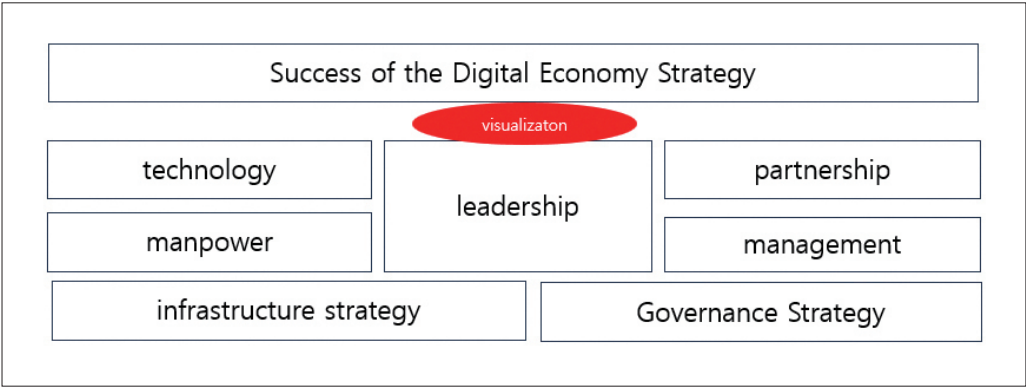
- 1) The need for realistic alternatives to ensure the prosperity of the digital economy of both countries.
- 2) Activation of the Laos Statistical Information Service (laosis.lsb.gov.la)
- 3) There is a need to support data economic cooperation by easily conveying the status of trade and other economic performance and industrial development.

In the areas of data governance, legal system improvement, and statistical information exchange, which are the subjects of research for the development of the Laos digital economy, it is necessary to implement the results in the form of outputs at the current stage so that additional research and proposals can be made through tangible results, and it is necessary to specify the results of the research so that they can be confirmed numerically or through websites. The background to this statistical visualization project is

the belief that it is important to create visually verifiable examples of how to specifically link frequently cited statistical information, such as economic and trade performance, as well as research performance documents.

For Laos' digital economy to succeed, it will require a robust infrastructure, a blueprint for governance strategies, advanced and stable technologies, a reliable and professional workforce, strong and sustained leadership, diverse overseas partners including Korea, and, finally, management capabilities that tirelessly review and audit. Visualization will play a very important role as a tool to check and sense the level of completion at every stage of this strategy implementation, and its necessity is emphasized as it overcomes the limitations of a task that only produces results in a research report and provides more tangible research results.

Figure 14 Blueprint for Digital Economy Strategy



5.3. Current Status

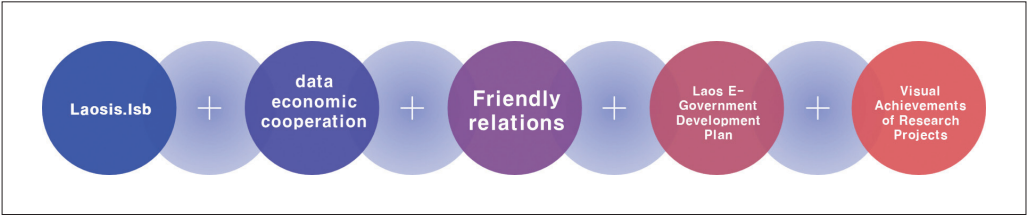
- 1) 2019 Laos website construction
- 2) Laos has maintained a close cooperative relationship with the Korean Statistics Office until recently.
- 3) The need to disseminate Korean IT technology and governance systems to Laos' ongoing e-government construction project.

In 2019, Statistics Korea jointly implemented the website laosis.lsb.gov.la through an external economic cooperation project with Laos. It is being used as a key information gathering platform for Korean companies, researchers, and students seeking information on Laos. Laos and Korea are expected to further strengthen their information exchanges

in the future due to increased tourism and educational scale, and their cooperative relationship in IT technology and data governance systems is expected to continue to strengthen further in line with the Laos e-government construction project, which is scheduled to be completed within the next 3 years.

- Activation of the Laos Statistical Information Service (laosis.lsb.gov.la)
- There is a need to support data economic cooperation by easily conveying the status of economic performance and industrial development, including trade.
- Laos maintains close cooperative relations with the Korea Statistical Information Service.
- The need to disseminate Korean IT technology and governance systems to Laos' ongoing e-government construction project.
- In 2019, the Laosis site was built in collaboration with Statistics Korea
- We need tangible, practical, and useful results as realistic alternatives for the prosperity of the digital economy of both countries

Figure 15 Proposal Background



5.4. Proposal Contents

5.4.1. Development of a service to share various indicators and statistics of both countries using proposed Korean AI data and visualization technology

The first proposal is to implement a pilot service that links statistical data from Laos and Korea and leverages AI. Currently, countries around the world are implementing services to share statistical data through international organizations, utilizing standards and common infrastructure to facilitate the linkage and utilization of statistical data. Therefore, a large amount of data is already well-organized and ready for linkage and utilization, creating a favorable environment. Here, we propose a service that links data from each country in a different way than before by implementing a data service

that combines technology that automatically overlaps data according to perspective, AI technology that automatically tracks data based on correlation and causality, and the convenience of linking data through automatic translation and mouse movements.

5.4.2. Sharing data relay and connection technologies for the tangible expression of digital economy cooperation research results

Secondly, we aim to concretize the results collected through this economic development cooperation research by including numerically explainable research data, related statistical data, and reference materials so that they can be shared with other research and related websites as tangible results.

5.4.3. Build and open a service site through POC (<https://laos.pythagraph.com>)

Thirdly, we plan to operate a temporary site called www.laos.pythagraph.com to store and visualize the data to be included in this way. This will be used as a proof of concept (POC) to gauge the appearance of the service that will actually be implemented.

5.4.4. The latest Laos data is included in the Korean data service

Fourth, we would like to propose a concrete plan for collecting the latest data on Laos. Statistical information, especially national statistical information, requires not only collection, processing, and verification processes, but also government approval to ensure reliability. This process often lags by as little as six months or even a year, making the provision of information unavoidable for business purposes. In order to compensate for the slow pace of statistical information compared to the utilization of big data and AI in a rapidly changing business environment, we propose that the portal also include and utilize the latest information, not just statistical information, as a way to inform that this is a necessary element in responding to the digital economy.

5.4.5. Vientiane Times data provided by Korea (provided to Laos after service in Korea)

Fifthly, in order to collect up-to-date information and useful information for business, we will secure the latest data through media such as the local journal Vientiane Times and share it on the portal as quickly as possible to reinforce the shortcomings of statistical data in providing breaking information.

5.4.6. Operation of a service that provides data from two countries or East Asian countries to LLMs such as Claude and Gemini through joint development MCP, etc.

The sixth is utilizing MCP, a form of AI technology. Hallucination, a drawback of language model AI such as LLM, becomes more severe in numerical data when it becomes difficult to parse the added weights and measures, such as commas (,), periods (.), and tables, by combining them with the numbers. A key way to complement this is to utilize MCP, which specializes in numerical and statistical information. In addition to providing data through MCP, we propose a challenging task of demonstrating a new technology for data sharing between countries by creating a case in which data from both countries is provided through a joint process.

5.4.7. ChatGPT to Provide Data Analysis Services in Korea and Laos from Gemini LLM

The seventh is the implementation of AI-based data analysis and visualization technology, directly within a statistical data portal, rather than through a global LLM. As previously explained, hallucinations in numerical data make it difficult to quickly identify errors within an LLM. For example, if the Laotian population growth is expressed in units of tens of thousands and the Korean population is expressed in units of millions, the numerical data may be interpreted by AI, and the Laotian population may be transmitted as 777 (actually 7.77 million) and the Korean population as 50 (actually 50 million), causing distortion. If the person viewing the numerical values does not have a certain level of understanding in advance, they may make the mistake of using the values transmitted by the AI as they are. One way to easily identify these types of errors is to directly connect AI to a portal that holds data, allowing both the AI's results and the data to be verified and utilized. This can be used as a way to prevent mistakes and strengthen AI. To this end, we propose integrating the LLM API into the statistical visualization

portals to be established in both countries. While sensitive and security concerns may arise regarding the AI provision of data, we believe that by initially focusing on already open statistical data and gradually expanding the approach, the security concerns that prevent service development from even attempting to begin will be somewhat resolved.

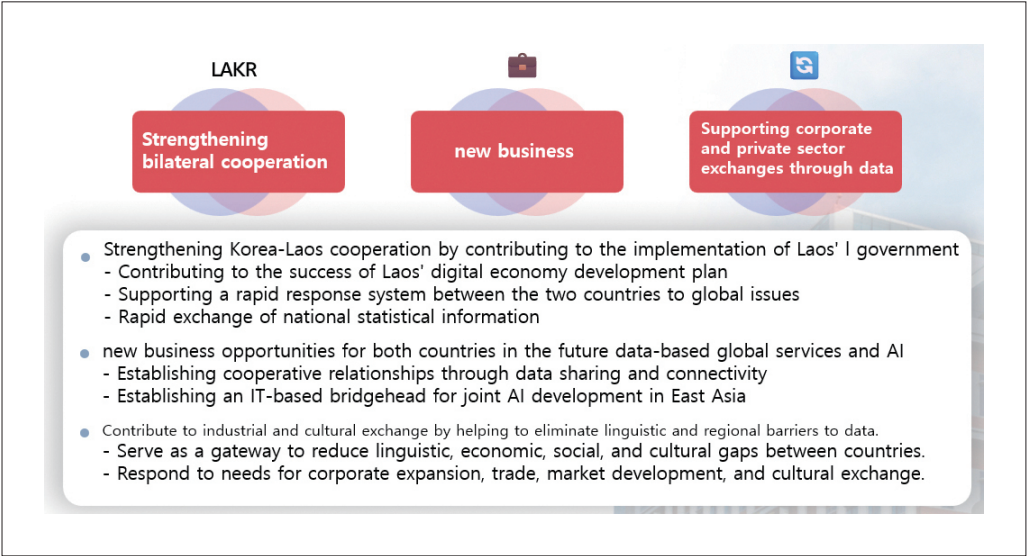
Figure 16 Service Cases



5.5. Expected Effect

We anticipate the following benefits from the implementation of the statistical data visualization portal between the two countries.

Figure 17 Expected Effect from Implementation of the Statistical Data Visualization



5.5.1. Strengthening Korea-Laos cooperation by contributing to the construction of a digital society in Laos

As with various forms of international cooperation support, the statistical data visualization portal proposed in this study and as a proof-of-concept will be valuable as part of the digital society development effort by educating and promoting data utilization practices to diverse Laotian citizens. Furthermore, by Korea being the primary driver of these proposals and implementation, it is expected to contribute to the promotion of friendly cooperation between the two countries.

5.5.2. Contributing to the success of Laos' digital economy development plan

As with various forms of international cooperation support, the statistical data visualization portal proposed in this study and as a proof-of-concept will be valuable as part of the digital society development effort by educating and promoting data utilization practices to diverse Laotian citizens.

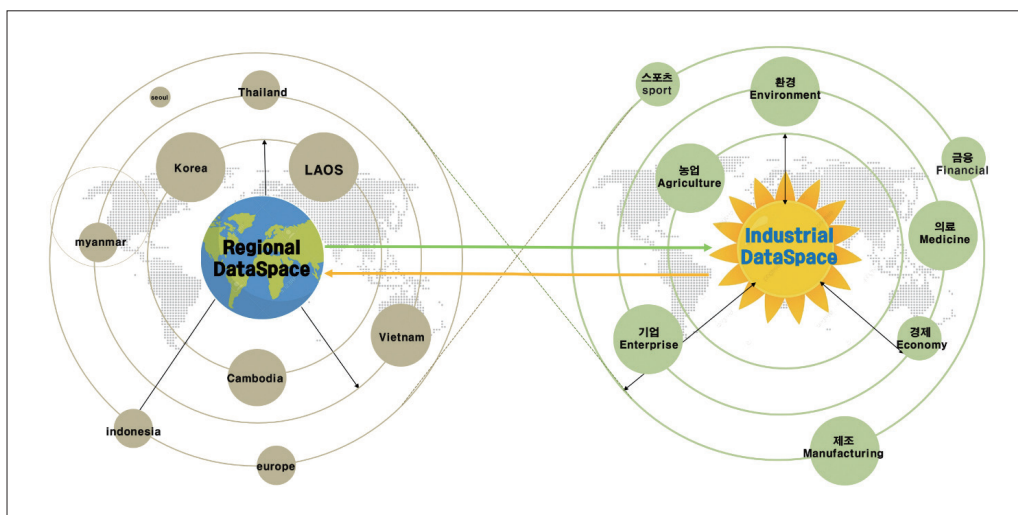
Laos's current digital economy initiatives, including high-speed internet networks, e-government, digital payments, and ICT talent development, require not only physical components such as hardware, software, and networks, but also resources and know-how in diverse areas such as governance, law, systems, and manpower.

This project focuses on governance, legal systems, and other areas, emphasizing the importance of software for building a digital economy. Furthermore, the provision of visualization tools and the centralization of statistical information, which can help assess the actual level and design specific goals, are considered crucial and necessary suggestions.

5.5.3. Support for a rapid response system between the two countries to global issues

While the pace of information exchange around the world is already near real-time, preparations for services and analysis, such as correlation analysis, the exchange of accurate numerical information, and AI-ready data, remain somewhat inadequate. The statistical visualization portal will support rapid information sharing and exchange between countries, including the collection of key statistical data from both countries, the rapid collection of up-to-date data, and the immediate sharing and convergence of data. This will also serve as a new example of data utilization in East Asia and the world.

Figure 18 The Concept of Platformizing the Portal Network Itself



5.5.4. Overcoming language barriers in cross-border data linkage

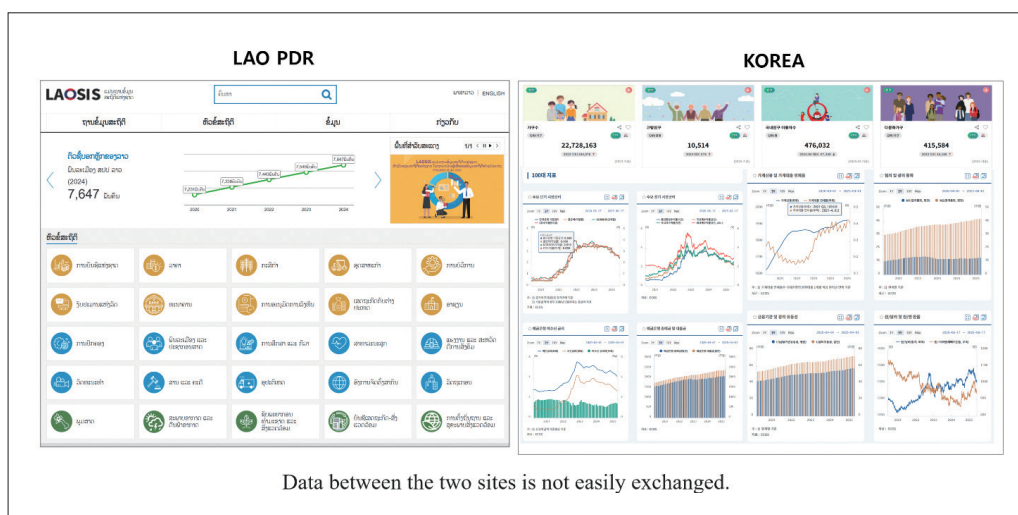
Data also faces language barriers. Once produced, data is first described in the native language, then translated into English and then into the language of a third country. In the case of statistical data, even if only the metadata such as the data title, units of measurement, X-axis, and Y-axis description are translated, it is usually understandable. Compared to the difficulty of translation in other fields, it is composed of words and short sentences, so it is relatively easy to remove the language barrier.

The concept of the data portal is not to translate data whenever necessary, but to design it so that data is translated and stored in advance, taking almost no time for conversion. In addition, when supporting AI, it responds in each country's language, so it goes beyond the general case of providing the convenience of translation when simply searching, and aims to provide a scope of implementation that eliminates translation barriers up to the point of data linkage and fusion.

5.5.5. Role as a window to reduce the gap in language, economy, society, and culture between countries

The statistical visualization data portal targets not only statistical data but also various data arising from the fields of social culture, economic trade, industry, current affairs, and culture, which is the biggest difference in terms of service content compared to simply providing a visualization of nationally approved statistical data.

Figure 19 Data between the Two Sites are Not Easily Exchanged



By including various contents such as documents, videos, and photos, as well as descriptions of the contents, as well as numerical and statistical information, and even removing language barriers, we aim to implement a system where almost all contents can be smoothly distributed and compared without any spatial or temporal boundaries, with only the physical distance between countries existing.

5.5.6. Responding to the needs of corporate expansion, trade, market development, cultural exchange, etc.

Ultimately, the various statistical visualization information collected and shared will be very useful data for companies seeking to advance into the two countries for market research, product research, and analysis, and is expected to become a beneficial software power for promoting trade, enhancing understanding between countries, and supporting corporate advancement.

5.5.7. Creating new business opportunities for both countries in the future, including data-based global services and AI

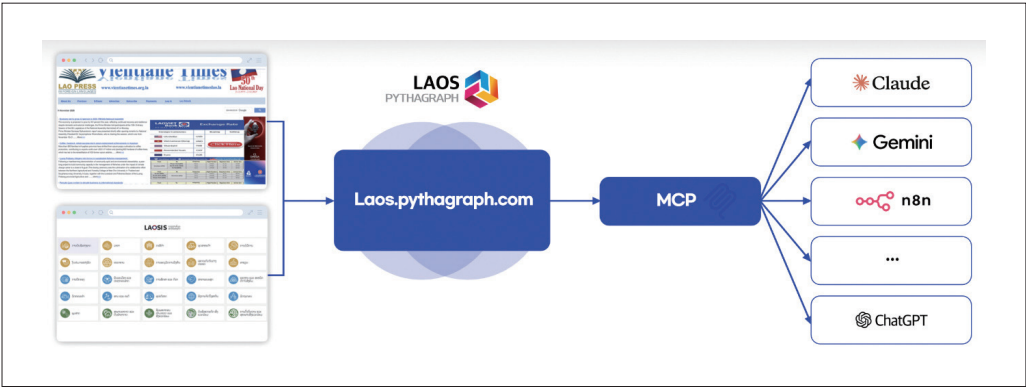
Laos is currently pursuing a policy prioritizing the digitalization of its entire national resources. Once this phase matures, it will naturally move on to the integration and utilization of AI. AI utilization and education are already underway in the private sector,

and with further progress in securing and stabilizing data infrastructure, this field will also reach the level of development seen in other countries.

Korea also lacks a global leader in AI. However, the country's current support plans, infrastructure such as semiconductors, and excellent resources, coupled with research and investment in this field, are expected to rapidly secure top-tier AI technology and establish globally leading AI services.

In this context, if the relationship between the two countries remains friendly and international cooperation, such as ongoing ODA projects, continues, new AI-related business models will be planned, and significant progress will be made in data-related areas through examples such as the results of this study.

Figure 20 Laos Data Flow for AI



5.5.8. Building collaborative relationships through data sharing and connectivity

The statistical data visualization portal goes beyond simply collecting data; it also transmits and receives data to other countries, finding the same perspectives contained within the data and connecting them. Since the format of data can be very diverse, in order to connect data, it is necessary to find a common perspective and expand the analysis based on this commonality. Therefore, expressing it in a way that is visually understandable by simplifying it or reducing its complexity is also a very important element in utilizing data.

Typically, data utilization has been provided by downloading it from a portal or cloud and manually combining it on the analyst's workstation or outside the platform. However, this portal provides a unique and easy-to-use method of combining data within the portal.

Data linking using this method is very advantageous for exploring points of

collaboration between data, and when combined with AI, it is expected to be very advantageous for discovering new insights into research collaboration and analysis results because learning is easy.

5.5.9. Establishing a bridgehead from an IT perspective for joint AI development in East Asia, etc.

There are concerns that, just as certain industries converge on advanced technologies of only a few countries after a certain period of time, AI technology may also undergo a similar process, becoming a strategic industry for a small number of countries. To promote future joint research and development in the AI industry and establish the role and direction of the East Asian community for the data that must be continuously collected, it must be emphasized that data linking, integration within platforms, and data acquisition strategies based on the AI-READY concept are essential components of Laos' digital strategy and digital transformation process.

Furthermore, to play a global leadership role in this field, Laos, which is currently preparing infrastructure or undergoing a trial-and-error process for development, and Korea, which is developing related solutions, would be more motivated to cooperate than to partner with already-developed technologies. From a political and economic perspective, the proposals of this study are serious and will serve as a key bridgehead for the two countries' economic cooperation and development process and the presentation of a blueprint for a digital economy.

Recommendations on Policy and Legislation

6.1. Building Digital Economy and Society in Lao PDR

To achieve a prosperous digital economy, the Lao PDR should establish a PMO to unify national strategies and coordinate digital policies across all ministries. This leadership must be supported by the enactment of a Public Data Act that aligns with global standards to ensure data protection and interoperability. The Ministry of Technology and Communications (MTC) should clarify institutional roles and oversee an open data portal to stimulate private-sector innovation and academic collaboration. Financial sustainability should be secured through blended finance models—such as EDCF and ODA—alongside institutionalized budgets for long-term system maintenance. Finally, the government must invest in comprehensive digital literacy and technical training while accelerating the expansion of 5G networks and integrated cloud platforms to bridge the urban-rural divide.

6.2. Digital Legislation and Regulation Framework

This chapter analyzes the digital legislation and regulatory framework that Laos should establish in response to global changes driven by the expansion of artificial intelligence (AI) and the data economy, and presents the enactment of a Public Data Act as a core policy instrument. Digital transformation is not merely a matter of expanding ICT infrastructure or computerizing administrative processes; it represents an institutional transition toward restructuring overall state governance on a data-driven basis. In particular, data held by the public sector has the potential to function as a key resource

for AI training, digital services, and private-sector innovation, making it essential to establish a legal framework governing how such data is managed, opened, and utilized.

6.2.1. The Role of Law in Data Environment Changes and the Transition of Data Governance

With the expansion of the digital environment, data is increasingly recognized as a core public asset that supports administrative efficiency, the improvement of public services, and private-sector utilization. Accordingly, the role of law should move beyond simple regulation or restriction and toward establishing an institutional foundation that enables public-sector data to be systematically collected, managed, safely utilized, and opened.

Public-sector data has significant strengths in terms of reliability and representativeness. However, without clear legal grounds and operational frameworks, such data is unlikely to be effectively used for policymaking or linked to private-sector innovation. In response, major countries have clarified the legal status of public data as a national public asset and have developed comprehensive legal frameworks and open platforms covering the entire lifecycle of data production, management, provision, and reuse.

This approach demonstrates that public data policy functions as a key governance tool that promotes administrative innovation and public–private collaboration.

6.2.2. Common Directions of Public Data Legislation Identified Through International Comparison

A review of cases from the United States, the European Union, China, Southeast Asian countries, and Korea reveals several common trends.

First, public data is legally defined not as a by-product of information disclosure but as a reusable public asset.

Second, public data opening is implemented through government-wide, platform-centered systems rather than institution-by-institution approaches (e.g., Korea’s Public Data Portal).

Third, instead of opening all data at once, a phased strategy focusing on high-value datasets is commonly adopted.

Fourth, clear non-disclosure criteria and accountability rules are designed alongside data opening in order to protect personal information, national security, and public order.

In particular, Korea has established a comprehensive governance model through the Act on the Provision and Use of Public Data, which clearly defines the legal nature of public data, obligations of public institutions to provide data, and users' rights to

reuse data. This framework integrates a government-wide public data portal, dedicated administrative bodies, standardization and quality management systems, and the Korea Open Government License (KOGL). Korea's experience demonstrates that public data legislation can go beyond declaratory norms and lead to actual implementation and utilization.

6.2.3. Current Status and Limitations of Laos's Digital Legal Framework

Laos already has individual laws and systems related to data, including electronic transactions, cybersecurity, personal data protection, and electronic records management. In addition, dedicated organizations and centers supporting data utilization have been gradually established. However, these frameworks primarily focus on data protection, security, management, or technical support for data use, and there is no dedicated law that clearly positions public data as a national public asset and systematically governs its opening, circulation, and reuse.

As a result, public data policy in Laos tends to rely on individual projects or ad hoc administrative initiatives. Disclosure scope, standards, and procedures vary across public institutions, and data formats, quality, and licensing conditions are not standardized. Moreover, uncertainty regarding commercial reuse and liability discourages active private-sector participation, constituting a structural limitation of the current system.

6.2.4. Policy Rationale for Enacting a Public Data Act

To address these limitations, this report proposes the enactment of a Public Data Act as a key policy task, serving as a general law dedicated to the provision, management, and reuse of public data. The Public Data Act is not intended to replace or consolidate existing data-related laws, but rather to fill legislative gaps in the public data domain.

Drawing on international standards and Korea's legislative experience, this report presents a draft Public Data Act of Laos consisting of 24 articles. The proposed law is designed as a general framework that:

- Clearly defines public data as a national public asset;
- Establishes the data provision obligations of public institutions and the reuse rights of users;
- Introduces a central-government-led governance structure;
- Provides for medium- and long-term planning and evaluation mechanisms;
- Sets out basic procedures for public data provision and management; and

- Incorporates both utilization-promotion measures and protective safeguards.

The law focuses on defining “what should be done,” while delegating detailed technical standards and operational methods to subordinate regulations, thereby ensuring both enforceability and institutional flexibility.

6.2.5. Policy Recommendations and Implementation Directions

Based on the analysis in this chapter, the following policy directions are recommended.

First, the enactment of a Public Data Act should be pursued as a top priority and serve as the institutional starting point for Laos's digital transformation.

Second, following enactment, implementing decrees, subordinate regulations, and practical guidelines should be developed in phases to enhance local applicability and execution capacity.

Third, the establishment of a government-wide public data portal should be pursued as a mid- to long-term task to secure a practical means of enforcing the law.

Fourth, a phased implementation roadmap should be maintained, prioritizing selected datasets rather than opening all public data immediately.

Fifth, public data should be recognized not merely as a tool for administrative transparency but as a core infrastructure for the digital economy and emerging AI ecosystems, with commercial reuse permitted in principle.

In sum, this chapter emphasizes that, in responding to the digital era, Laos requires an integrated digital legal framework centered on public data, beyond piecemeal adjustments to individual data-related laws. The enactment of a Public Data Act constitutes the core instrument of this framework and will serve as a foundational institutional basis for the realization of digital government and the development of a data-driven economy in Laos.

6.3. Convergence of Visualization of Lao-Korea Statistical Data

Based on statistical data from both countries, we introduce data visualization technology that supports digital economy research and content development. We also propose ways to leverage this technology to implement tangible service models.

The goal of this proposal is to create a service that allows anyone to easily access

data from both countries through unique visualization technology, allowing them to experience aspects of the digital economy. Furthermore, it aims to create tangible results that can be utilized for work and research by leveraging the diverse information contained within.

Furthermore, based on this consensus, the proposal seeks to expand this service to neighboring countries and establish a model data service for East Asia.

First, we review the statistical data-related cooperation projects between the two countries since 2019 and reemphasize the necessity and effectiveness of visualization in data utilization.

- 1) A proposal to implement practical digital economy services by exchanging statistical data.
- 2) Introduction to Korea's unique data visualization technology.
- 3) Implement and utilize a POC service that exchanges data on various economic, social, cultural, and industrial fields of the two countries, including statistical data.
- 4) Introduction to the methodology for including various data that can help understand Laos in the Korea Data Service.
- 5) Propose a methodology for sharing data that is collected quickly and timely, such as Laos current affairs data.
- 6) Propose a methodology for utilizing Laos and Korean data through a global LLM.

We anticipate that data exchange and visualization services will be another way for both countries to demonstrate the development of Laos' digital economy. We also anticipate the effectiveness of this proposal as an exemplary case of data utilization in both countries and East Asia.

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POLICY FRAMEWORK AND INCENTIVE DESIGN

발행인 | 이상규

발행처 | 정보통신정책연구원

충청북도 진천군 덕산읍 정통로 18

Tel. 043-531-4416 Fax. 043-531-4419

디자인 | 시드그래피 seedgraphy@naver.com

KISDI

18, Jeongtong-ro, Deoksan-myeon, Jincheon-gun,
Chungcheongbuk-do, 28982, Republic of Korea
Tel. +82-43-531-4416 Fax. +82-43-531-4419
www.kisdi.re.kr