

### **Artificial Intelligence**

## Landscape Assessment (AILA)

Shaping AI to be an empowering force for people and planet

## VIET NAM 2025

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### Preamble

Artificial Intelligence (AI) is transforming how we live, work, and govern. It offers remarkable opportunities—but only if we choose to use it responsibly. At UNDP, we believe that AI should serve a higher purpose: **to benefit people and the planet**, not just to drive corporate efficiency or profitability.

The promise of AI lies in its ability to accelerate progress toward the **Sustainable Development Goals (SDGs)**—from ending poverty and protecting ecosystems to building more transparent and accountable institutions. But this promise will only be realized if AI is developed and deployed ethically, inclusively, and with strong safeguards.

UNDP is advocating for **responsible Al governance and regulation**, recognizing that innovation must be matched with accountability. At the same time, we are **experimenting on the ground**—in Viet Nam and beyond—on how AI can be a force for good:

As this *AI Landscape Assessment (AILA)* shows, Viet Nam stands at a pivotal moment. With the right strategy, investments, and ethics in place, AI can be a powerful accelerator of national development and human progress.

Let's ensure we build an AI future that is fair, inclusive, and sustainable for all.

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## **Executive summary**

The Institute for Policy Studies and Media Development (IPS), in collaboration with the United Nations Development Programme (UNDP) in Viet Nam and the Chief Digital Office (CDO), has taken a significant step towards embracing the transformative power of Artificial Intelligence (Al). Given the substantial demand for effective AI adoption across various sectors in Viet Nam, including both private and public domains, significant efforts have been undertaken to thoroughly identify and analyze potential AI-related strengths and weaknesses. This comprehensive assessment aims to guide strategic investment decisions and facilitate necessary modifications to optimize AI implementation. By pinpointing key areas of opportunity and addressing potential challenges, stakeholders can ensure that AI technologies are leveraged to their fullest potential, thereby driving innovation, enhancing operational efficiency, and fostering sustainable growth across the nation.

Central to this effort is the launch of the AI Landscape Assessment (AILA) by the UNDP, a comprehensive tool designed to evaluate a country's readiness for ethical AI integration. AILA, through its methodical approach, focuses on three fundamental pillars: the government as an AI user, its role as an enabler in the AI ecosystem, and fostering the development of ethical AI nationwide. This assessment tool, leveraging both quantitative and qualitative data, aims to analyze the preparedness of government in adopting and enabling AI in an ethical and responsible manner.

Viet Nam stands at a pivotal juncture, with the potential to harness AI to advance its progress towards the Sustainable Development Goals (SDGs). This aligns with the nation's overarching vision, particularly in critical sectors such as poverty alleviation, healthcare, education, and economic development. However, the journey towards effective AI integration is not without challenges. Research identifies key areas such as regulatory landscape and leadership vision, technology and infrastructure, high-quality data, and skills for further investigation to understand the strengths and challenges of Viet Nam's AI landscape and the adoption of AI within the government. Examining these aspects will help stakeholders gain a comprehensive understanding of the current state of AI in Viet Nam and identify opportunities and challenges for improvement and strategic investment.



## **Executive summary**

The AI Landscape Assessment report provides an in-depth analysis of Viet Nam's current AI landscape, highlighting both capabilities and challenges. Among its key findings is that Viet Nam is facing significant challenges in establishing an ethical and effective AI ecosystem, as well as in adopting AI applications within government operations. These challenges are particularly evident in areas such as technological infrastructure, highquality data, and skills development. Internally, difficulties in securing funding and the lack of effective communication between technical and non-technical personnel hinder the efficient navigation and utilization of AI. Externally, geopolitical tensions restrict and delay access to critical AI and semiconductor technologies, including AI chips and servers, which further impedes progress.

Despite these obstacles, there are considerable efforts and political will at both national and local levels to harness AI for widespread adoption. In light of these circumstances, strategic recommendations have been proposed, focusing on two key areas:

#### (A) As an AI Ecosystem Enabler:

**Addressing Key Limitations:** Viet Nam must continue to improve on areas identified as constraints in the report, such as data interoperability, the development of advanced Al infrastructure, and legal barriers related to investment capital. These improvements are crucial for creating a more conducive environment for Al development and adoption.

**Investment in Applied AI Research:** Given the global surge in AI innovation, Viet Nam should prioritize investment in applied AI research rather than basic theoretical AI research. This will allow the country to capitalize on the ongoing AI wave and position itself more effectively in the global AI landscape, enhancing its national competitiveness.

**Building a Collaborative AI Ecosystem:** Viet Nam should focus on creating a more interconnected and supportive ecosystem that fosters collaboration between various stakeholders in the economy, including both public and private sector entities. A stronger partnership between these groups will help drive innovation and ensure that AI development aligns with the country's broader economic goals.



### **Executive summary**

#### (B) As an AI User:

**Enhancing Digital Literacy for Public Officials:** Viet Nam should invest in enhancing the digital literacy and AI capabilities of government employees. This will ensure that public officials are equipped to understand and effectively implement AI solutions in their respective sectors, facilitating smoother integration of AI within government operations.

**Al Application Development Based on Institutional Needs:** Viet Nam should focus on developing Al applications that are specifically tailored to the needs and readiness levels of individual government agencies, rather than simply chasing technological trends. By following a clear roadmap for Al adoption, each agency can ensure that the applications deployed are practical, relevant, and aligned with their unique operational requirements.

#### (C) Ethical AI:

As AI technologies increasingly impact society, Viet Nam should establish mechanisms prioritizing **accountability, transparency, safety, and inclusivity**, particularly in the public sector's AI adoption. A regulatory framework must hold developers accountable for AI's societal impact, ensuring transparency in algorithms, data usage, and decision-making. Bias mitigation strategies should be implemented to ensure fairness, especially in public administration, healthcare, and law enforcement. Safety protocols should be established to minimize risks and ensure ongoing evaluations. Inclusivity is crucial, involving diverse stakeholders to ensure AI benefits all, including marginalized groups.

By addressing these key recommendations, Viet Nam can foster a more robust Al ecosystem and ensure the successful integration of Al technologies in both government and broader societal contexts. This strategic approach will not only overcome current challenges but will also enable Viet Nam to fully capitalize on the potential of Al for sustainable development and global competitiveness. The report suggests prioritizing Al applications in sectors where Viet Nam has competitive advantages, such as public service delivery and citizen-government engagement enhancement.



#### **Background Note**

The transformative potential of artificial intelligence (AI) spans various industries and holds the promise of significantly contributing to the Sustainable Development Goals (SDGs). Recognizing this, governments have a key role in ensuring that AI is applied in a manner that upholds human rights and governance principles. AI readiness, therefore, encompasses a government's preparedness to ethically leverage AI technology for public good, entailing the development of strategies, policies, standards, and laws, both as facilitators of the AI-driven economy and as users of AI in public administration and services.

As AI emerges as a dominant force in the global economic landscape, the concept of AI readiness becomes increasingly critical. Governments equipped to deploy AI in public services can harness its advantages — enhanced efficiency, and improved decision-making processes — while addressing potential risks like bias and privacy concerns. Such readiness ensures a competitive advantage in sectors like trade, manufacturing, and security and safeguards citizens' rights and freedoms. An AIready government is competent in navigating and mitigating AI-related challenges, including workforce displacement and ethical issues, fostering a balanced and responsible integration of AI into societal and economic frameworks.



## Introduction

**Background:** Supporting this assessment is the United Nations Development Programme (UNDP) in Viet Nam and the Chief Digital Office (CDO), which have jointly collaborated to launch the AI Landscape Assessment (AILA). The AILA, crafted by UNDP, is an evaluative tool designed to assess a country's current AI capabilities and aims at informing Viet Nam's AI strategy. It examines three core pillars: government as a user of AI in public service delivery and operations, government as an enabler of a wider AI ecosystem, and the country-wide development of ethical AI principles and practices. Drawing on surveys, workshops, key informant interviews, and external indicators, this robust assessment calculates scores across a series of dimensions and sub-dimensions within each pillar to determine readiness on a spectrum from basic (<20%) to transformational (80%+).

**Purpose and scope:** This report aims to provide a comprehensive analysis of Viet Nam's AI readiness. It outlines the purpose of the assessment, which is to evaluate the country's preparedness to leverage AI technology ethically and effectively. The scope covers various dimensions and sub-dimensions within the three core pillars of the assessment framework.

**Methodology:** The methodology section briefly describes the approaches used for data collection and analysis. It includes surveys, workshops, key informant interviews, and external indicators. The section also highlights any challenges faced during data collection and how they were mitigated. For complete details on the AILA methodology and scoring approach, please refer to Annex I.



# Overview of priorities, interests and challenges in (Viet Nam)

#### Observed priorities and interests

Al has the potential to revolutionize economies and societies, changing how we tackle complex issues and take advantage of new possibilities. The analysis of responses on AI interest areas revealed a broad spectrum of sectors where AI is seen as impactful. There was a notable interest in AI applications, infrastructure development, and workforce cultivation across various sectors, from administrative reforms to critical education and healthcare challenges in Viet Nam. The goal is to leverage AI for enhanced efficiency, service delivery, and problem-solving, integrating it into Viet Nam's socio-economic development.

Central to these interests is a focus on digital transformation. Amid rapid technological advancements and evolving regional and global dynamics, Viet Nam's national strategies increasingly emphasize harnessing the Fourth Industrial Revolution and emerging technologies such as AI, blockchain, and quantum computing. These innovations are crucial for enhancing national competitiveness both domestically and globally. Consequently, the government has launched initiatives to ensure that key sectors, particularly technology and digitalization, lead this transformation.

Indeed, the central government acknowledges Al's innovative power to enhance national economic competitiveness and drive economic development to achieve its strategic goals.. This is clearly reflected in the guiding views within the strategic documents proposed and approved by central leadership in recent years. Prime Minister Pham Minh Chinh has repeatedly urged ministries to focus on building databases, applying artificial intelligence, and implementing digital transformation in the operations of Viet Nam's public system, including lawmaking. This has resulted in a strong political will and support for the application of artificial intelligence, demonstrated through both verbal commitments and strategic regulations. In Viet Nam, artificial intelligence has long been listed as one of the national priorities for research, development, and application (reference Decision No. 66/2014/QD-TTg). Resolution No. 52-NQ/TW of 2019 by the Politburo on several guidelines and policies for proactive participation in the Fourth Industrial Revolution emphasized prioritizing resources for key national sectors, including artificial intelligence.

# Overview of priorities, interests and challenges in (Viet Nam)

#### Observed priorities and interests

Decision No. 127/QD-TTg of 2021 by the Prime Minister on the issuance of the national strategy for research, development, and application of artificial intelligence until 2030 highlighted strategic priorities in developing human resources, promoting research development, and transferring technology related to artificial intelligence, contributing to breakthrough and sustainable economic growth.

Subsequent documents reflecting guidelines, orientations, and strategies following Decision No. 127/QD-TTg particularly emphasize the importance of AI technology for the national socio-economic breakthrough opportunities. Decision No. 569/QD-TTg of 2022 on the issuance of the strategy for science, technology, and innovation development until 2030 also lists AI along with other technologies in the 4.0 ecosystem, including cloud computing, the Internet of Things (IoT), blockchain, and virtual reality, as key technologies prioritized for development and application. Most recently, Resolution No. 57-NQ/TW signed by General Secretary To Lam at the end of 2024 set a target that by 2030, Viet Nam will be among the top 3 leading countries in Southeast Asia and the top 50 globally in AI research and development, along with the formation of a big data industry. This clearly demonstrates the ambition and future development goals of the nation closely tied to the AI ecosystem.

Despite significant movements in regulatory landscape and political wills, there are controversy regarding Al development's economic impact and adoption within the public sector, alongside varying perspectives across different government levels. Surveys focusing on central government officials show optimism about Viet Nam's Al landscape, while interviews with specific agencies and local governments reveal hidden challenges hindering Al development and adoption. This contradiction highlights a critical gap between regulations and practice, of which details will be revealed further later in this report.

# Overview of priorities, interests and challenges in (Viet Nam)

Observed priorities and interests

Figure 1: Survey Results on Government's National Priorities



#### Observed challenges

The challenges faced by government agencies in implementing AI and data initiatives are multidimensional, as indicated by the variety of difficulties raised in survey responses. The most notable of these are:

- **Regulatory-related challenges** for AI development and application in Viet Nam include the absence of a comprehensive legal framework for efficient data collection and processing, as well as inadequacies in intellectual property laws to address AI-generated content and innovations.
- **Funding-access-related challenges** for AI development and application in Viet Nam include limited availability of financial resources for AI research and innovation, as well as difficulties in securing investment from both public and private sectors.
- **Data-related challenges** for AI development and application in Viet Nam include issues with data quality, availability, and accessibility, as well as concerns about data privacy and security.
- Infrastructure-related challenges for AI development and application in Viet Nam include insufficient high-performance computing resources, limited access to advanced AI technologies, and inadequate digital infrastructure to support largescale AI deployments.
- Workforce-related challenges for AI development and application in Viet Nam include a shortage of skilled AI professionals, limited training and educational programs, and the need for continuous upskilling to keep pace with rapid technological advancements.



#### Observed challenges

These challenges are also complemented by the findings from the Key Informant Interviews. A key informant pointed out both internal and external factors contributing to the obstacles Viet Nam is currently facing. Internally, the fast-changing nature of Al, especially with the boom of Generative Al, has outpaced the Vietnamese regulatory landscape. This has resulted in regulations that cannot fully capture the intricate nature of Al-related technology, particularly in areas such as ethical Al, effective data sharing, ecosystem development, promoting a high-quality workforce, and accessing efficient funding for Al development and investment, reflecting a gap in strategic planning and practical applications of Al. Externally, geopolitical factors, especially the influence of major global powers and their impact on the Asia-Pacific region, limit Viet Nam's access to cutting-edge core technologies necessary for Al development and application, including advanced servers and Al chips.



# Digital landscape of Viet Nam

**Data governance:** Discuss the existing data governance framework, including key legislation and policies related to data privacy and security.

According to the "Digital Development Compass" report by UNDP, Viet Nam is currently in stage 3 of 5 in digitalization (systematization stage), with a growing technology adoption rate that enables basic proficiency and increasingly complex tasks. Notably, Viet Nam's government ranks among the top 10 globally in digital capacity, having reached stage 5 (transformation stage) in areas such as comprehensive digitalization, integrated digital skills, centralized strategy, measurable goals, long-term budgeting, and full integration of digital principles (UNDP, 2025).

Viet Nam's digital transformation progress is also highlighted in the 2024 UN E-Government Development Index (EGDI) report, where it rose by 15 places to rank 71st globally and 5th in Southeast Asia, now in the "Very High" EGDI group. This leap reflects Viet Nam's strategic investments in online public services, telecom infrastructure, and digital skills development (UN, 2024).

In terms of internet penetration, Viet Nam ranks 45th globally in fixed broadband speed and 52nd in mobile broadband speed, above the global average (VTV, 2022). Highspeed internet infrastructure has rapidly expanded in urban centers like Hanoi and Ho Chi Minh City, with rural access improving progressively.

For mobile connectivity, 3G/4G coverage now reaches 95% of the population, bringing Viet Nam close to universal internet access, comparable to developed countries. The rollout of 5G is underway in major urban areas, further enhancing the digital experience and supporting digital services development. While 4G currently dominates the mobile market, widespread 5G adoption is expected as infrastructure expands, and providers invest in next-generation networks.

Social media usage is now integral to daily life in Viet Nam, supported by rising smartphone and internet use. Social media platforms have evolved from connecting people to becoming essential tools for brands to engage consumers. Facebook remains the most popular platform, followed by Zalo, surpassing YouTube and TikTok in popularity (Nguyen N. M., 2025).



# Digital landscape of Viet Nam

#### **Demographic insights:**

According to the 2023 Statistical Yearbook of the General Statistics Office of Viet Nam, the country's population reached 100.3 million, with an uneven distribution: 61.9% reside in rural areas, while only 38.1% live in urban areas, where digital infrastructure is more developed. This disparity significantly impacts the rural population access to technology.

In terms of age structure, data since 2019 has shown a decline in the population under 15 and the working-age group (15-59 years), while the proportion of elderly people has increased considerably. Between 2019 and 2021, the population aged 60 and over rose from 11.86% to 12.8%, or 12.58 million people. Notably, there is a widening gender gap among the elderly, with 57.82% being women compared to 42.18% men.



#### Figure 2: Population pyramids of Viet Nam, 2019 and 2021

Source: Illustration based on data from PHC 2019 and PCS 2021



## Digital landscape of Viet Nam

The aging population structure, combined with the uneven urban-rural distribution, presents significant challenges for AI adoption. The older population tends to be less engaged with and inclined to learn new technologies, while digital infrastructure remains underdeveloped in rural areas. These factors underscore the need for Viet Nam to invest in digital skills training and infrastructure development to increase AI readiness nationwide.

In the labor market, Viet Nam has 52.4 million workers aged 15 and above, with the majority (62.6%) in rural areas and only 37.4% in urban areas, indicating an imbalance in access to technology and AI resources. By sector, labor is mainly concentrated in services (39.6%), industry and construction (33.5%), and agriculture-forestry-fishery (26.9%), reflecting industrialization trends and the demand for AI applications in these fields.

Notably, 65.1% of the workforce is in informal employment, with limited access to advanced technology, while only 27.2% of workers have undergone formal training, primarily in urban areas (42%). These factors pose a substantial challenge to expanding AI adoption across the country.



#### Figure 3: Overview of Workforce Distribution in 2023

## Digital landscape of Viet Nam

**Data governance:** Discuss the existing data governance framework, including key legislation and policies related to data privacy and security.

Viet Nam's data governance framework is rapidly evolving to support its digital economy. This development, initiated in the 13th National Congress, highlights data's role in economic growth and security, leading to laws that establish strong regulations on data management, cybersecurity, and privacy.

Key legislation includes the Law on Network Information Security (2015), the Law on Cybersecurity (2018), and Decrees No. 64/2007, 47, and 13/2023, which focus on information protection and data regulation. These laws address both national and sectoral data and guide data handling in both public and private sectors. For instance, the banking sector has quickly adopted digital data practices, optimizing customer interactions and operations (H & M, 2020).

The Ministry of Public Security indicates that Viet Nam has over 69 laws related to databases, covering 33 national and 39 specialized databases. These databases, developed by various governmental agencies, facilitate public administration and socioeconomic development. A few critical national databases include records on identity, land, health, and education.

Recently, the Draft Data Law was introduced to establish clear data processing principles, outline responsibilities of state and party entities, and strengthen international data corporation. This draft law, with seven chapters and 67 articles, guides the creation and management of national integrated databases to support digital transformation (MPS, 2024).

Additionally, the Draft Personal Data Protection Law, released for public feedback in September, are designed to bring Viet Nam's data standards in line with international norms. The Draft law is intended to take precedence over any conflicting laws on personal data protection, reinforcing Decree 13's strict consent requirements. Addressing sensitive data processing and cross-border data transfers, this framework strengthens data privacy and security measures, supporting a reliable digital environment essential to Viet Nam's growing digital economy (Vu, 2024).

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This section will provide a complete study and analysis of Viet Nam's artificial intelligence (AI) landscape and readiness. The three main pillars are Government as a User, Government as an Enabler, and Ethical AI.

#### ► Analysis per Pillar

#### Figure 4: Overview of Viet Nam's AI Landscape Assessment scores per pillar





#### Pillar 1: Government as a User

In the context of government AI usage, Viet Nam lies in the Differentiating phase (3.2), where there is a comprehensive and coordinated effort towards preparing for the deployment and integration of artificial intelligence. This phase is characterized by four dimensions, including (1) Vision, (2) Technology, (3) Data, and (4) Skills.

#### Pillar 2: Government as an Enabler

In the role of government as an enabler for AI development, Viet Nam falls within the Systematic phase (3.0). This phase indicates four specific domains, including (1) (1) Data, (2) Infrastructure, (3) Innovation, and (4) Skills.

#### Pillar 3: Ethical Al

Regarding ethical AI, Viet Nam is currently in the Systematic phase (2.1). This stage indicates four dimensions of assessment, including (1) accountability, (2) inclusivity, (3) safety, and (4) transparency.

#### C. Analysis per Dimension and Subdimension

#### Fig 5: Overview of Viet Nam's AI Readiness Scores per Dimension



#### C. Analysis per Dimension and Subdimension

Fig 6: Overview of Viet Nam's AI Readiness Scores per Subdimension





#### C. Analysis per Dimension and Subdimension

Fig 7: Overview of Viet Nam's AI Readiness Scores per Subdimension



#### **Ethical Al**



#### Government as a User of Al

This pillar includes Technology, Data, Skills, and Vision as dimensions.

#### 1. Vision

#### a. Analysis

Within the public sector, a clear, coordinated vision for how AI will be used across departments is important to maximize AI's impact. This vision is especially integral to the governance of potentially harmful technologies. The sub dimension of vision is strategy.

The overall AI Readiness phase for vision is Differentiating (3.8 implying Vietnamese governmental leaders have significantly acknowledged AI's critical role in transforming government functions, clearly understanding its potential to drive innovation and efficiency within public services. This political support is evidenced by both survey (see Fig.6) and interview findings. At the high level of leadership, officials recognize AI's transformative power in improving government operations and enhancing citizens' interactions and engagement. This support is reflected in both verbal endorsements and strategic regulations, such as the National AI Research, Development, and Application Plan Until 2030 (Decision No. 127/QĐ-TTg) and the Ministry of Information and Communications' Action Plan on Implementing AI Adoption Strategy Until 2030 (Decision No. 699/QĐ-BTTTT).



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#### Fig 8: Political Support for Al Adoption in Public Sector (Survey)

5.1. Have any ministers in your government expressed political support for the use of AI in the public sectors?

#### Government as a User of Al

This pillar includes Technology, Data, Skills, and Vision as dimensions.

#### 1. Vision

#### a. Analysis

The strong support from high-ranking government leaders has encouraged a number of AI applications and adoptions within the public sectors. However, these efforts remain fragmented and lack unification, as illustrated by independent applications within some agencies and departments that possess high technical skills and expertise in AI and machine learning. Highlighted applications include:

- An Al-powered chatbot assisting judges, developed through a collaboration between the Viet Nam Supreme People's Court and Viettel Corporation.
- An Al-powered chatbot assisting government officials, developed by the Ministry of Information and Communications.
- An Al-powered chatbot assisting officials and representatives at the National Assembly.
- An Al-powered chatbot assisting officials at the Ministry of Justice.
- Tay Ninh province's internal chatbot for officials and Al-powered camera system for transport oversight.



#### Government as a User of Al

This pillar includes Technology, Data, Skills, and Vision as dimensions.

#### 1. Vision

#### a. Analysis

Additionally, there are other applications such as the speech-to-text Al-supported system used at the National Assembly and the Aldriven camera system used for traffic monitoring in Tay Ninh province. However, showing through the interviews, it is clearly shown that chatbot applications are predominantly focused within the Vietnamese government, some interviewees suggested that this might come as a consequence of the launch of notable chatbots and virtual assistants, including OpenAl's ChatGPT, Microsoft's Copilot and Google's Gemini. Despite this, apart from the Al-driven chatbots deployed at the Supreme People's Court and Tay Ninh province, other applications have not received widespread positive feedback from users or shown a clear path to completion. These successful applications employ a demand-based approach to meet agency needs rather than pursuing the latest generative Al technologies.

For instance, the AI chatbot used at the Supreme People's Court demonstrates a reasonable approach to AI application. Although lacking extensive IT personnel, the court collaborates with the service provider Viettel to develop solutions. Despite relying on an external company, the Supreme People's Court retains project control by defining the problems and guiding the service provider with relevant expertise to meet the court's needs. Similarly, Tay Ninh province adopts a user-centric approach, aligning solutions with the agency's readiness in terms of human resources and technology, leading to successful AI applications such as the intelligent traffic camera system and the internal chatbot for officials.



#### Government as a User of Al

This pillar includes Technology, Data, Skills, and Vision as dimensions.

#### 1. Vision

#### a. Analysis

The positive attitudes in interview responses and approachesfocusing on needs-readiness rather than pursuing emerging technologies-underscore the need for more structured and specific guidance and vision to achieve effective AI adoption. The strategy should prioritize practical and tailored AI solutions, rather than merely pursuing advanced technologies without proper assessment. This involves focusing on technologies that are most relevant and effective in addressing pressing issues faced by government agencies. The goal is to implement solutions that provide tangible benefits and measurable improvements in public sector operations. A targeted approach ensures that investments are strategically directed toward areas with the highest potential for impactful AI integration. By aligning AI adoption with the specific needs and capabilities of government agencies, Viet Nam can achieve more meaningful and sustainable advancements in public sector efficiency and innovation.

#### **b.** Recommendations

(1) Develop a Strategic Roadmap:

Formulate a comprehensive strategic roadmap for AI integration at both national and agency levels. This roadmap should ensure a demand-based, structured, and phased approach to AI adoption, aligning with the specific needs and capabilities of government agencies. While a similar document exists in the Ministry of Information and Communications' Action Plan on Implementing AI Adoption Strategy Until 2030 (Decision No. 699/QD-BTTTT), it serves an internal departmental purpose. A more detailed strategy and roadmap are required, encompassing aspects such as funding sources, human resources, technical specifics, effectiveness evaluation methods, and risk prevention measures. This would provide a clearer and more unified direction for AI integration across various governmental functions, ensuring consistency and coherence in implementation.



#### Government as a User of Al

This pillar includes Technology, Data, Skills, and Vision as dimensions.

#### 1. Vision

#### **b. Recommendations**

(2) Establish Mechanisms for Experience Sharing:

Create platforms and forums for top leaders of various agencies to share their experiences in Al adoption and application. This will facilitate knowledge transfer and encourage best practices. Given the successful applications in Tây Ninh province and the Supreme People's Court, sharing experiences among agencies could significantly shorten the trial-and-error process and foster mutual learning. Structured and regular exchanges of insights, challenges, and solutions can help standardize Al application methodologies and promote a culture of collaboration and innovation within the public sector.

(3) Encourage Stronger Collaboration Inside and Outside the Public Sector:

Foster partnerships among agencies for similar applications and with academic institutions and private sector experts to bring cuttingedge AI solutions into the public sector. This collaboration can accelerate the development and implementation of innovative AI applications. Leveraging external expertise and resources can bridge knowledge gaps, introduce advanced technologies, and offer fresh perspectives, driving more effective and innovative AI solutions tailored to specific government needs. Establishing joint task forces, collaborative research initiatives, and public-private partnerships can ensure that AI adoption is comprehensive, inclusive, and forwardlooking.



#### Government as a User of Al

This pillar includes Technology, Data, Skills, and Vision as dimensions.

#### 2. Technology

#### a. Analysis

Governments do not just enable technology – they also use it. Governments both build AI tools internally and purchase AI tools from external suppliers through procurement. The subdimensions of technology are Development, Procurement, and Infrastructure. The subdimensions for data are quality and interoperability.

The overall AI Readiness phase for Technology, as reflected by the survey, is Systematic (3.0), which implies within Viet Nam's public sector, there is a foundational level of technological infrastructure and technologies supporting the adoption of artificial intelligence (AI). This foundation includes the personal deployment of commercial AI tools such as OpenAI's ChatGPT, Google Gemini, and Microsoft Copilot, as well as a variety of internal applications. These internal solutions are either developed in-house by government agencies or sourced through partnerships with major technology providers in Viet Nam, such as Viettel Corporation, Viet Nam Posts and Telecommunications Group (VNPT), and FPT. In particular, the infrastructure supporting AI adoption is bolstered by critical technologies, including processors, data storage systems, and other essential components necessary for the effective functioning of AI applications.



#### Government as a User of Al

This pillar includes Technology, Data, Skills, and Vision as dimensions.

#### 1. Technology











#### Government as a User of Al

This pillar includes Technology, Data, Skills, and Vision as dimensions.

#### 2. Technology

#### a. Analysis

Although the interview and survey data do not delve deeply into the specifics of the technological sophistication currently available, several key challenges have emerged, shedding light on areas of difficulty in Al adoption, including:

(1) Technological Infrastructure: Many interviewees underscored the insufficient availability of advanced technologies, and the infrastructure required to fully leverage sophisticated AI applications (Vu, 2024) (GOVCT0005, 2024) (GOVPR0013, 2024). Budgetary constraints, combined with complex procurement processes, create barriers that hinder government agencies' ability to acquire the highperformance infrastructure necessary for deploying cutting-edge AI solutions (GOVPR0013, 2024) (GOVCT0005, 2024). This includes specialized AI hardware, such as advanced AI chips (e.g., NVIDIA H100), as well as dedicated AI data centers that are crucial for processing large datasets and supporting resource-intensive AI models. A particularly illustrative example of these limitations is seen in the Viet Nam Supreme People's Court, where there is a need to scale up the Al-powered Chatbot for Judges application. Despite its success, the court faces significant challenges in expanding the system due to a lack of access to more advanced processors. While the precise reasons for these constraints were not fully disclosed in the interviews, it is clear that the current technological infrastructure cannot support the expansion of AI systems that require highperformance processing power and large-scale data management.



#### Government as a User of Al

This pillar includes Technology, Data, Skills, and Vision as dimensions.

#### 1. Technology

#### a. Analysis

(2) Technical Expertise: Maintaining and scaling AI technologies in the public sector presents ongoing challenges, primarily due to a shortage of technical expertise necessary for overseeing the installation, operation, and maintenance of AI infrastructure (Author, 2024). Consequently, public agencies often rely on third-party technology firms for both infrastructure support and AI solution development. Many provincial officials have expressed a strong need to hire technical experts within their agencies (GOVCT0003, 2024). However, they face significant obstacles, including the inability to allocate funding or adjust staffing within fixed tenure constraints. The deployment of various public services has been notably hindered by the lack of skilled technical personnel, as any technical issues must be addressed by external firms, leading to delays rather than real-time resolutions (GOVPR0008, 2024). (GOVPR0005, 2024).

(3) Funding and Financial Support: Funding and financial support also hinder better AI adoption within Viet Nam's public sector. To address significant obstacles in investment for information technology applications supporting digital transformation, Deputy Prime Minister Trần Lưu Quang signed Decree No. 82 on July 10, 2024. This decree amends and supplements certain provisions of Decree No. 73 from 2019, which regulates the management of state investment in information technology applications, including AI and similar technologies, using state budget funds. The revision of the legal framework for accessing state budget funds in IT investments demonstrates the government's political commitment and close attention to resolving institutional and policy bottlenecks for digital transformation and AI ecosystem development. Improvements in Decree No. 82 compared to the previous Decree No. 73 aim to promote the overall development of the technological ecosystem. These improvements include removing cost limit regulations for onestep and two-step design projects and ensuring funds for maintenance, operation, and product maintenance activities of IT application investment projects. This significant shift is beneficial for machine learning and AI applications, given the frequent need for fine-tuning these systems.



#### Government as a User of Al

This pillar includes Technology, Data, Skills, and Vision as dimensions.

#### 1. Technology

#### a. Analysis

However, experts have pointed out several limitations of the new Decree No. 82. These issues stem from a limited understanding of the unique nature and complexity of AI applications, making it difficult for government agencies to secure the necessary funding for AI projects, particularly during the research, design, and testing phases. AI-based systems, especially the development of foundation models, often cannot have their specific functionalities and complexities accurately determined for valuation purposes (ACAD0001, 2024). This is particularly problematic during the research and development phase, where the valuation mindset for AI-powered products has not been timely updated to reflect the nature of AI-related studies.

#### **b.** Recommendations

Recommendation for the mentioned difficulties might be as followed:

(1) Encourage Partnerships across sector: Foster collaboration between the government, academia, and the private sector such as Viettel, CMC, and FPT. Yet, it is important to consider the fact that external companies typically provide standardized, off-the-shelf infrastructure solutions, which may not fully account for the specific characteristics of government agencies, the regulations, and the unique needs of the public sector. Additionally, they may not meet the specialized requirements of the particular industries or sectors where AI applications are intended to be deployed. This mismatch between the provided solutions and the actual needs of government agencies can result in inefficiencies, suboptimal AI implementation, and failure to meet the intended goals. Furthermore, these enterprises are often only able to share their infrastructure for a limited period, which may not provide long-term sustainability for government operations.



#### Government as a User of Al

This pillar includes Technology, Data, Skills, and Vision as dimensions.

#### 1. Technology

#### **b.** Recommendations

(2) Promote Science and Technology Diplomacy: Enhance international collaboration with countries possessing advanced technologies and infrastructure systems through science and technology diplomacy. While significant efforts have been made by the Vietnamese government to strengthen bilateral relations with technologically advanced nations, particularly with the United States through the elevation of the relationship to a Comprehensive Strategic Partnership in 2022 (U.S. Mission Viet Nam, 2023), these efforts have paved the way for increased collaboration between USbased tech giants such as NVIDIA and leading Vietnamese companies like FPT, VinGroup, and Viettel (VNS, 2023). While much of this focus has been on fostering opportunities for the private sector and the broader economy, a more government-centered approach is necessary to enable central government agencies and local authorities—such as the Supreme People's Court and Tay Ninh province-to access advanced processors and technologies at affordable prices. This would significantly accelerate the adoption and integration of AI within Viet Nam's public sector, driving innovation and improving efficiency across government operations.

(3) Update Funding Frameworks: Revise the funding framework to better reflect the specific needs and complexities of AI projects. This should include accommodating the iterative nature of AI development, which often requires significant upfront investment without immediate returns. By aligning funding mechanisms with the unique demands of AI research and application, the government can support more effective and sustainable AI initiatives.



#### Government as a User of Al

This pillar includes Technology, Data, Skills, and Vision as dimensions.

#### 3. Data

#### a. Analysis

Access to high-quality, representative data is vital to developing accurate, non-discriminatory AI. Within government, AI's value will also be maximized if information can be exchanged between different systems, in what is known as interoperability.

The overall AI Readiness phase for data is Systematic (2.9), which implies that the Vietnamese government officials recognize the crucial importance of high-quality data for internal AI applications, as evidenced by both public statements and interviews. In response, the Vietnamese government has undertaken significant national efforts to digitize essential government data at both central and provincial levels. These efforts have laid a robust foundation for Albased applications across various sectors. Notable initiatives include the development of six national data sets, with core data such as the national population data achieving a level of completeness that facilitates seamless data integration within and outside the government, enabling applications like electronic customer identification (eKYC) by connecting with banking institutions (ANTV, 2023).




## Government as a User of Al

This pillar includes Technology, Data, Skills, and Vision as dimensions.

#### 3. Data

#### a. Analysis



Fig 10: Data Sharing Within Government (Survey).

However, interviews have revealed obstacles remaining. Data maturity and readiness vary significantly across different sectors and governmental levels, presenting numerous challenges. Interviews conducted in several provinces, including Nghệ An, Hà Tĩnh, and Thái Nguyên, revealed that limited cross-agency and cross-level data transfer prevents local government agencies from fully utilizing the rich data resources available in other departments (GOVPR0001, 2024) (GOVPR0005, 2024) (GOVPR0006, 2024). This lack of data exchange hinders the ability of provincial-level agencies to leverage data from national or other regional agencies to support their objectives.

Moreover, the availability of clean, ready-to-process data remains a major hurdle, as much of the data is either incomplete or requires significant preparation before it can be effectively used. Additionally, many older government data sets have not yet been digitized and are largely stored locally and fragmentarily or even in physical formats, such as paper documents (GOVPR0008, 2024). This further complicates efforts to utilize data for AI applications.



# Government as a User of Al

This pillar includes Technology, Data, Skills, and Vision as dimensions.

#### 3. Data

#### a. Recommendations

(1) Comprehensive National Data Digitization: Implement a national digitization initiative that spans from central to local government levels. This should include the creation of robust, scalable databases designed to seamlessly integrate various data sources, ensuring the foundation for a nationwide digital ecosystem. This initiative will focus on improving access to data and reducing reliance on paper-based systems, aligning with global best practices for data management. Government unit for overseeing and governing needed to be assigned.

(2) Strengthening Data Integration and Interoperability: Enhance data integration processes across government tiers (local, regional, and national) and among various public sector agencies. This initiative should prioritize the standardization of data formats, development of interoperable systems, and the implementation of open Application Programming Interfaces (APIs) to ensure seamless data sharing, collaboration, and utilization across government functions.

(3) Data Cleaning and Restructuring Initiative: Launch a national data cleaning and restructuring project aimed at identifying and rectifying errors, inconsistencies, and gaps within existing government databases. This will ensure data quality, enhance reliability, and support accurate decision-making across government functions. Additionally, establish protocols for regular audits and updates to maintain data integrity.



# Government as a User of Al

This pillar includes Technology, Data, Skills, and Vision as dimensions.

#### 3. Data

#### a. Recommendations

(4) Open Government Data for Public Use: Promote transparency and public access to government-held data by creating an open data initiative that ensures certain government datasets are published and made easily accessible to citizens, researchers, and businesses. This effort should focus on making data available in machine-readable formats and creating a central, user-friendly portal for public use.

(5) Data Governance Strategy: Develop and implement a comprehensive data governance framework for public sector that defines policies, standards, and procedures for data ownership, stewardship, and usage. The strategy should also include mechanisms for data security, privacy protection, and compliance with international standards, ensuring all government data management practices adhere to best practices for accountability and trust.



# Government as a User of Al

This pillar includes Technology, Data, Skills, and Vision as dimensions.

#### 4. Skills

#### a. Analysis

In order to build or use AI, governments need both technical skills for building and adopting AI tools and non-technical skills for supporting the use and integration of new technologies. The subdimensions for skills are technical and non-technical.

The overall AI Readiness phase for skills is Systematic (2.3) which implies that Within the Vietnamese government, certain individuals handle either technical or non-technical roles—or both—related to AI applications. However, while these individuals are capable of performing specific AI-related tasks, their capacity to leverage AI in a transformative manner remains limited. This limitation hinders the potential for AI to significantly enhance efficiency and drive innovation at a national level.



## Fig 11: Survey result on Government efforts in hiring AI technical talent



# Government as a User of Al

This pillar includes Technology, Data, Skills, and Vision as dimensions.

#### 4. Skills

#### a. Analysis

More significant challenges are revealed during the interviews. Particularly in the public sector is the shortage of specialized technical staff who can effectively operate and coordinate Al projects. This gap not only impedes internal Al development but also complicates collaboration with outsourcing technology firms. Although internal training with field experts is frequently conducted, officials often do not attain a comprehensive understanding of Al applications and techniques. As a result, government agencies struggle to articulate their Al needs, leading to the adoption of offthe-shelf solutions that may not be well-tailored to specific requirements.

Technology outsourcing firms frequently present solutions that have been successful elsewhere without thoroughly understanding local nuances and sector-specific needs. This results in a mismatch between proposed technical solutions and the actual demands of the requesting government body. The absence of government engineers with both technical expertise and an understanding of the agency's unique needs exacerbates this issue, undermining the agency's ability to define problems and guide solution development effectively (GOVCT0002, 2024).

#### **b. Recommendations**

(1) Establish Legal and Financial Foundations: Develop a robust legal and financial framework that supports the creation of an internal AI team specifically dedicated to government projects. This team will be responsible for driving AI initiatives and ensuring they align with government objectives. The internal AI team should comprise specialists with advanced skills, including:

Machine Learning Engineers: Proficiency in advanced algorithms, deep learning frameworks (TensorFlow, PyTorch), and data modelling. Al Ethics Experts: Strong understanding of Al ethics, responsible Al practices, and fairness algorithms to ensure compliance with ethical standards.

Data Scientists: Expertise in statistical analysis, predictive modelling, and big data analytics to interpret large datasets for Al-driven insights. Al Project Managers: Professionals with the ability to manage complex Al initiatives, budget allocation, risk management, and team coordination.



# Government as a User of Al

This pillar includes Technology, Data, Skills, and Vision as dimensions.

#### 4. Skills

#### **b.** Recommendations

(2) Employ In-house Liaison Engineers: To bridge the gap between external contractors and government agencies, consider employing Liaison Engineers who facilitate smooth In-house can communication, ensuring that the AI solutions developed by external vendors meet the specific needs of government agencies. These liaison engineers will play a critical role in (a) translating complex AI requirements of public agencies into actionable tasks for external vendors, (b) ensuring that AI solutions are aligned with governmental priorities, standards, and regulatory requirements, (c) acting as technical advisors during the integration of AI technologies into existing government infrastructure.

(3) Invest in Comprehensive AI Training Programs: Invest in tailored training programs that focus on enhancing both the technical and non-technical skills of government employees. This will ensure a deeper understanding and better implementation of AI applications across various government sectors. Training programs should focus on developing expertise in the following areas: (a) Advanced Technical Skills: Data Science, Machine Learning and AI Algorithms, AI Programming, AI Governance and Ethics, Cloud Infrastructure; and (b) Non-technical Skills: AI Project Management, Data-driven decision making, Legal and Ethical Considerations.



## Government as an enabler

This pillar includes Infrastructure, Skills, Data, and Innovation as Dimensions.

## 1. Infrastructure

#### a. Analysis

A strong AI infrastructure provides the networks to connect different technologies and researchers to develop and deploy AI at scale. For AI to be a useful tool for the population, basic IT infrastructure needs to be in place. The subdimensions of infrastructure are development and accessibility.

The overall AI Readiness phase for infrastructure is Differentiating (4.0) which implies Viet Nam has established substantial policy support for the development of an AI ecosystem. Specifically, the foundational infrastructure, including telecommunications, has nearly 100% coverage across the population. As of November 2023, 4G coverage in Viet Nam reached 99.8% (An, 2024). In October 2024, Viettel Corporation launched the first 5G network in Viet Nam with 6,500 BTS stations, covering 100% of the capitals in all 63 provinces (Nguyen H., 2024).

In the current year, Viet Nam's efforts in science and technology diplomacy have facilitated the upgrading of relationships with developed countries and major technology corporations such as the United States, Google, and NVIDIA. These efforts have enabled technology transfer, including technologies that support the national AI ecosystem, particularly AI processors (VNS, 2024). Leading technology companies and universities in the country have primarily benefited from these diplomatic achievements.

However, challenges remain regarding the infrastructure supporting Viet Nam's AI ecosystem. Similar to the deficiencies in technology and infrastructure in the public sector, the overall AI ecosystem in Viet Nam faces specific difficulties related to accessing advanced supporting technologies such as AI processors. This issue is most evident in small and medium-sized enterprises (SMEs) and many research institutions and universities. While leading technology companies like Viettel, FPT, and VinGroup have substantial financial and human resource backing to access advanced infrastructure, SMEs and startups in the AI field face significant challenges due to financial and policy support constraints (PRIVA0003, 2024).



## Government as an enabler

This pillar includes Infrastructure, Skills, Data, and Innovation as Dimensions.

## 1. Infrastructure

#### a. Analysis

Additionally, there are issues related to maintaining these infrastructure systems, including the resources needed for running and operating large-scale infrastructure. From 2010 to 2022, electricity consumption by Viet Nam's data centers has tripled, while bandwidth usage has increased by a factor of 10 to 15. This surge is attributed to the growing number of data centers and Al-supported infrastructures established since the 2010s. For example, the 14th data center of Viettel Corporation, located at the Hoa Lac High Tech Park, has an electricity consumption of 30 megawatts (Nguyen H., 2024). When combined with the electricity consumption of all 14 Viettel centers, the total rises to 87 megawatts (Nguyen H., 2024)equivalent to the electricity usage of nearly 70,000 North American households (Mahan, 2023). Moreover, by 2025, Viet Nam plans to establish additional data centers, which will further increase total electricity consumption by an estimated 30 megawatts. Given the current electricity shortages in Viet Nam, particularly during the peak demand period from May to July (My, 2024), meeting the electricity needs of these data centers could place a significant strain on the national electrical grid.

This issue also links to concerns related to environmental sustainability. Ensuring green and sustainable criteria for these infrastructures will also pose a significant challenge for Viet Nam in the future. Although certain achievements have been made, with a total installed renewable energy capacity of approximately 20.7 Gigawatts (as of 2023), accounting for more than 27% of the total installed capacity of Viet Nam's power system (Cong Thuong Newspaper, 2023), attention must still be paid to energy security and the green transition. This is especially critical in light of the environmental challenges that the construction and operation of these infrastructures may bring.



## **Government** as an enabler

This pillar includes Infrastructure, Skills, Data, and Innovation as Dimensions.

## 1. Infrastructure

#### **b.** Recommendations

(1) Offering Tax Incentives and Grants: Provide tax incentives and grants to private companies investing in building and maintaining Al data centers, supercomputing facilities, and other critical infrastructure. This would not only stimulate private sector investment but also help address the resource gap necessary for supporting Aldriven technologies. These incentives should target investments in:

(a) Data Centers: To host vast datasets and AI models. These facilities should be equipped with high-performance computing (HPC) infrastructure, high-density storage solutions, and efficient cooling systems.

(b) Advanced Processors: Encourage investment in Graphics Processing Units (GPUs) and Application-Specific Integrated Circuits (ASICs), which are essential for AI workloads like deep learning and real-time data processing.

(c) Cloud Infrastructure: Promote the development of scalable cloud platforms that provide flexible, on-demand access to Al resources.

(2) Establishing Shared AI Research Facilities: Create shared AI research facilities accessible to both the public and private sectors. This will optimize resource utilization and foster collaboration, driving innovation and efficiency.



## Government as an enabler

This pillar includes Infrastructure, Skills, Data, and Innovation as Dimensions.

## 1. Infrastructure

#### **b. Recommendations**

(3) Diversifying Sourcing of Advanced Computing Components: Develop a strategy to diversify the sourcing of advanced computing components to mitigate risks associated with geopolitical tensions. This will ensure a stable and reliable supply of critical technologies. These efforts might include investing in local or regional manufacturers to reduce dependency on a single country or region.

(4) Forming Alliances with Supplier Countries: Forge alliances with supplier countries to create a regional/international Al infrastructure network. This will facilitate the sharing of resources and expertise, enhancing the overall Al ecosystem, facilitating technology transfer. Countries such as the US, China, Japan, and South Korea, as well as leading tech companies like Google, NVIDIA, and Intel, could serve as key partners. These alliances will enhance the global competitiveness of the Al ecosystem, foster innovation, and ensure access to cutting-edge technology.

(5) Promoting Eco-Friendly AI Infrastructure: Encourage the development of eco-friendly AI infrastructure to align technological progress with environmental sustainability. Focus on:

(a) Green Data Centers: Support the construction of energy-efficient data centers using renewable energy sources like solar, wind, and hydropower. These centers should incorporate low-power processors, efficient cooling systems, and energy-saving designs.

(b) AI Hardware Optimization: Promote the use of energy-efficient processors and advanced technologies (e.g., neuromorphic computing) to reduce the overall energy consumption of AI workloads.

(c) Circular Economy Initiatives: Foster the recycling and repurposing of computing hardware to minimize electronic waste (e-waste) and support a circular economy.



## Government as an enabler

This pillar includes Infrastructure, Skills, Data, and Innovation as Dimensions.

## 2. Skills

#### a. Analysis

Multiple skills are required to develop, validate and deploy Al systems. Policy experts point to a global 'skill gap' – a large gap between demand and supply for both technical and nontechnical skills. The Subdimensions of skills are technical and non-technical skills.

The overall AI Readiness phase for skills is Systematic (2.8) which implies the Vietnamese government prioritizes building digital capabilities for citizens and significantly invests in developing a highquality workforce in the technology sector (PM, 2021). Existing policies and initiatives aimed at enhancing digital skills and workforce development promote equal access and training opportunities for diverse groups without discrimination. This commitment is reflected through several national AI-related strategies emphasizing investment in specialized skills such as machine learning, AI, software development, and data science, highlighting the importance of top-tier higher education institutions nationwide (PM, 2021).

However, Viet Nam's journey towards developing an effective Al ecosystem reflects a landscape of mixed progress and significant challenges. In the broader economic context, high-level human capital, including both technical and non-technical skilled workforce, is predominantly concentrated in leading technology firms such as Viettel and FPT, as well as financial and banking institutions that provide stable employment and substantial benefits (ACAD0001, 2024). These organizations attract and retain top talent by offering competitive salaries, comprehensive benefits, and opportunities for professional growth, resulting in an imbalance of skilled workforce within the ecosystem.



## Government as an enabler

This pillar includes Infrastructure, Skills, Data, and Innovation as Dimensions.

## 2. Skills

#### a. Analysis

High-quality research resources are also primarily found at universities, both domestically and internationally, where cuttingedge research and innovation take place. These institutions play a critical role in developing the next generation of experts and leaders in various fields. Notably, a significant portion of Viet Nam's highly skilled workforce in artificial intelligence (AI), including experts and managers, is currently living and working abroad in leading technology companies like Apple, Meta, Microsoft, and Amazon, as well as top-tier universities globally (ACAD0001, 2024). These professionals have gained valuable experience and expertise in advanced technological environments, contributing to their host organizations' success.

However, Viet Nam's methods for leveraging this high-caliber human capital remain limited. Comprehensive efforts to tap into the expertise of overseas Vietnamese professionals have been developed or implemented but have yet to see significant impacts. To effectively harness this talent, it is crucial to prevent brain drain from the outset by investing in infrastructure and offering incentives to attract and retain high-quality personnel within Viet Nam. These incentives should include favorable policies, competitive compensation packages, and career development opportunities that make it attractive for these experts to work in Viet Nam. Additionally, creating a conducive work environment that promotes innovation, and collaboration will be essential in retaining top talent.



## Government as an enabler

This pillar includes Infrastructure, Skills, Data, and Innovation as Dimensions.

## 2. Skills

#### **b.** Recommendations

(1) Invest in Upgrading Educational Institutions to Support Al Research and Training: Enhance the infrastructure and facilities of educational institutions to foster advanced research and practical training in Al and related fields. This includes:

(a) State-of-the-Art Technology Labs: Establish cutting-edge AI labs equipped with the latest hardware and software, such as high-performance computing systems (GPUs, TPUs) and specialized AI tools (e.g., TensorFlow, PyTorch, and machine learning platforms).

(b) Inclusive Research Environments: Promote gender equality by creating inclusive and diverse environments that encourage participation from women and underrepresented groups in STEM (Science, Technology, Engineering, Mathematics) fields. Provide scholarships, mentorship, and support networks to help women and marginalized communities excel in AI research and development.

(2) Create Programs to Attract High-Skilled AI Professionals: Develop targeted programs aimed at attracting high-skilled AI professionals from abroad, such as:

(a) Streamlined Visa and Relocation Assistance: Simplify visa processes for AI experts, providing clear pathways for residency and work permits. Offer relocation assistance, including housing support, language training, and cultural integration programs.

(b) Gender-Responsive Recruitment Policies: Ensure that recruitment programs are designed to support gender diversity, offering equal opportunities for women and promoting female role models in Al.

(c) Partnership with Global Universities: Establish direct links with leading international universities and companies to create attractive job offers and research opportunities for AI professionals to work in Viet Nam.



## Government as an enabler

This pillar includes Infrastructure, Skills, Data, and Innovation as Dimensions.

## 2. Skills

## **b.** Recommendations

(3) Enhance Diplomacy for International Partnerships: Strengthen diplomatic efforts to form partnerships with leading international universities, research institutions, and tech companies to drive innovation in Al. Focus on:

(a) Global AI Research Networks: Develop global AI networks that involve a diverse set of stakeholders from academia, industry, and government, fostering international collaboration in AI innovation.

(b) Knowledge Exchange Programs: Establish initiatives for faculty and researcher exchanges, joint AI research projects, and collaborative conferences to facilitate the exchange of ideas and best practices.

(4) Establish Virtual Collaboration Platforms: Create virtual collaboration platforms that enable seamless communication and collaboration between overseas professionals and domestic agencies. These platforms will support remote participation in Al projects, fostering global cooperation.



## Government as an enabler

This pillar includes Infrastructure, Skills, Data, and Innovation as Dimensions.

## 3. Data

#### a. Analysis

Data underpins the training and scaling of Al models. The availability of high-quality data, that is regulated in a responsible manner, is essential for Al Readiness. The Subdimensions of data are quality and interoperability.

The availability and quality of open data are crucial to Al development and implementation. The report's insights into the problems and solutions for enhancing data accessibility and quality have a direct impact on Viet Nam's ability to effectively use Al. Improving the open data infrastructure, as stated, will not only help Al research and development, but will also aid in the ethical and efficient deployment of Al technologies in the public and private sectors, which is critical for Al readiness.

The overall AI Readiness phase for Data is Systematic (3.0)) which implies in the survey that Viet Nam is making significant efforts to improve data interoperability and integration across various sectors. However, interviews with representatives from both public and private sectors revealed challenges deriving from a wide range of data maturity levels among economic stakeholders.

Advanced technology firms such as Viettel, Viet Nam Posts and Telecommunications Group (VNPT), FPT, and banking institutions like Techcombank and VP Bank have long standardized their data to leverage it for optimizing operations, functions, and customer services. These organizations have invested significantly in data digitization and have established robust data management practices that support their strategic goals and enhance their operational efficiencies.

Conversely, small and medium-sized enterprises (SMEs) encounter various challenges in their data management efforts. These include a lack of technical capacity to digitalize existing data and uncertainty regarding the cost-benefit ratio of adopting digital solutions (National Assembly, 2024). Consequently, many SMEs have yet to fully embrace data digitization, which can impede their ability to compete in an increasingly data-driven economy.



## Government as an enabler

This pillar includes Infrastructure, Skills, Data, and Innovation as Dimensions.

## 3. Data

#### a. Analysis

Similar to the government sector, the broader economy faces limitations in data sharing among stakeholders. This is evidenced by the limited availability of high-quality open databases accessible to government agencies, private firms, and academic institutions. The absence of comprehensive data-sharing frameworks restricts the full utilization of data resources, thereby inhibiting collaborative efforts and innovation across sectors. Additionally, challenges related to Al include the rise of data-related crimes in Viet Nam.

These challenges highlight the need for continued investment in data digitization, standardization, and integration. Ensuring that data is standardized and interoperable will facilitate better data sharing and collaboration among government agencies and economic stakeholders. Additionally, enhancing data governance and establishing robust frameworks for data security and privacy will be essential to building public trust and garnering support for AI initiatives.

Viet Nam has shown significant efforts in dealing with data-related challenges. The newly launched Data Law in November 2024, effective from 2025, aims to improve data connectivity, sharing, and governance across the entire economy, laying the legal foundation for a data exchange platform (National Assembly, 2024). Regarding open data, Viet Nam has established an open data portal, although the volume and quality of available data remain limited (MIC, 2020). The drafting process for data-related laws also involved consultations with industry experts, including those from the private sector and academia.



## **Government** as an enabler

This pillar includes Infrastructure, Skills, Data, and Innovation as Dimensions.

## 3. Data

#### **b.** Recommendations

(1) Adopt Advanced Security Protocols to Protect Data: To build public trust and safeguard sensitive information, it is critical to adopt advanced security protocols and technologies to protect data from breaches and unauthorized access. This might include:

(a) Advanced Authentication Systems: Utilize multi-factor authentication (MFA) and biometric identification systems to ensure secure access to critical data and systems.

(b) Data Access Control Policies: Establish clear and robust access control mechanisms to ensure that only authorized personnel have access to sensitive data, with an emphasis on role-based access control (RBAC).

(2) Develop Comprehensive Data Ethics Guidelines: To ensure the responsible and ethical use of data, create and disseminate comprehensive data ethics guidelines across all sectors. These guidelines should focus on:

(a) Data Privacy and Protection: Ensure that data collection, storage, and usage adhere to strict privacy standards, aligning with international standards.

(b) Informed Consent: Establish clear processes for obtaining informed consent from individuals whose data is collected, ensuring transparency about how their data will be used.



## Government as an enabler

This pillar includes Infrastructure, Skills, Data, and Innovation as Dimensions.

## 3. Data

#### **b.** Recommendations

(3) Encourage Public-Private Partnerships for Data Management and Innovation: Foster public-private partnerships to leverage the expertise and resources of the private sector in enhancing data management, security, and innovation. Key actions include:

(a) Collaborative Data Infrastructure: Partner with private firms to build shared data storage and processing infrastructure, ensuring both sectors benefit from the latest advancements in data technologies.

(b) Joint Security Initiatives: Collaborate on advanced data protection technologies and protocols to secure sensitive government and citizen data against emerging cyber threats.

(c) Public-Private Data Sharing Platforms: Create platforms where government agencies can securely share non-sensitive data with private companies, promoting innovation while maintaining data protection standards.

(4) Provide Grants for R&D Projects: Offer grants and funding for research and development projects focused on innovative data management solutions and technologies. Areas of focus could include:

(a) AI and Big Data Analytics: Fund projects that explore AI applications in data processing, predictive analytics, and real-time decision-making to improve data management efficiency.

(b) Data Privacy Technologies: Provide funding for the development of technologies that enhance data privacy and security, such as differential privacy techniques, secure multi-party computation, and homomorphic encryption.

(c) Sustainable Data Solutions: Encourage research on sustainable data management practices that minimize the environmental impact of data centers and IT infrastructure.



## Government as an enabler

This pillar includes Infrastructure, Skills, Data, and Innovation as Dimensions.

## 4. Innovation

#### a. Analysis

Innovation is the process of generating new ideas, products and institutions. Innovation of AI in the wider economy requires a fair entrepreneurial regulatory environment, committed funding, and a coordinated government strategy around AI. The Subdimensions of innovation are strategy, environment, and funding.

The overall AI Readiness phase for Innovation is Systematic (3.0), which implies Senior leaders, including the Prime Minister and Ministers of various related ministries, have shown strong support for the research, commercialization, and application of AI technologies in the economy. This support is evident through a series of strategies and legal documents issued in recent years, including national strategies and laws on AI, semiconductors, and data. These laws facilitate AI-related projects and initiatives by providing access to government support such as funding, human resources, and infrastructure. Viet Nam is also exploring approaches to create a more efficient ecosystem for science and technology, particularly AI, exemplified by the controlled experimental mechanism currently being discussed in the draft Digital Technology Industry Law.

Amid rapid technological advancements and shifting regional and global political dynamics, Viet Nam recognizes the need for a sustainable, long-term development model. This transformation moves away from the traditional reliance on natural resources and cheap labor, focusing instead on modern technologies. Central to this strategy is the vision of "rapid and sustainable development based on Science, Technology, Innovation, and Digital Transformation," outlined in key national documents such as the Socio-Economic Development Plan for 2021-2030 and the National Master Plan (National Assembly, 2021) (National Assembly, 2022). These emphasize the importance of technology-driven growth for the nation's future.





## Government as an enabler

This pillar includes Infrastructure, Skills, Data, and Innovation as Dimensions.

## 4. Innovation

#### a. Analysis

1.1. Have any ministers in your government expressed political support for the research, commercialisation and use of AI in the wider economy



## Fig 12: Survey result on Political Support for AI

National strategies, particularly the National Strategy on Artificial Intelligence Research, Development, and Application by 2030 (hereafter referred to as Viet Nam's AI Strategy), have laid the foundation for various sectors, including the public sector, to harness the potential of AI.

Viet Nam's AI Strategy emphasizes the critical role of AI and related technologies in enabling the country to fully capitalize on the Fourth Industrial Revolution. By leveraging these technologies, Viet Nam aims to achieve substantial advancements in production capabilities, enhance national competitiveness, and drive sustainable economic growth. The strategy identifies key economic sectors where AI can be utilized, including national security, environmental management, and public services (PM, 2021). The overarching goal is to position Viet Nam among the top four ASEAN countries and within the top 50 nations globally in AI research, development, and application by 2030 (PM, 2021). Furthermore, Resolution 57-NQ/TW sets an even more ambitious target, aiming for Viet Nam to gradually master several strategic technologies, with a priority on AI development. By 2030, Viet Nam is expected to be among the top three Southeast Asian nations in AI research and development. Additionally, Resolution 57 outlines key areas such as data, technology infrastructure, scientific research, technology, and international cooperation, all of which are essential conditions for AI development and application. This highlights the nation's future development goals, closely tied to building a robust AI ecosystem.

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## Government as an enabler

This pillar includes Infrastructure, Skills, Data, and Innovation as Dimensions.

## 4. Innovation

#### a. Analysis

Figure 13: Survey Results on Regulatory Barriers





## Government as an enabler

This pillar includes Infrastructure, Skills, Data, and Innovation as Dimensions.

## 4. Innovation

#### a. Analysis

The key themes relating to regulatory barriers that emerged across stakeholder interviews included:

First, several interviewees expressed strategic concerns regarding the orientation of the national AI strategy. While the current strategy comprehensively emphasizes both theoretical AI and applicationfocused research, this focus, though not inherently wrong, may not be the most optimal approach for Viet Nam given its current context (GOVCT0001, 2024). As a middle power in the Indo-Pacific region with limited financial and human resources, it may not be practical for Viet Nam to adopt an all-encompassing approach to AI, addressing both theoretical research and applications across all economic sectors.

Given the rapid evolution of AI technology and the dynamic global landscape, a more strategic approach for Viet Nam would be to adopt a focused, niche development strategy, assigning specific priority to AI applications. Prioritizing AI applications in key industries and addressing national pressing issues would enhance the nation's capacity and visibility in AI adoption, allowing it to effectively leverage its late-mover advantages. This targeted strategy could help Viet Nam build a solid foundation in AI applications before expanding into broader theoretical research at a later stage.

This focused approach would allow Viet Nam to concentrate its limited resources on developing AI solutions that have the highest potential for immediate and impactful application. By doing so, Viet Nam can achieve early successes that demonstrate the practical benefits of AI, thereby gaining buy-in from stakeholders and building momentum for further AI initiatives. Early success stories in key sectors such as healthcare, agriculture, or public administration can serve as powerful examples of AI's transformative potential. This can also open up opportunities for partnerships and collaborations with leading AI research institutions and technology companies globally. By establishing itself as a center of excellence in certain AI applications, Viet Nam can also attract foreign investment, bringing in the necessary capital and expertise to further advance its AI capabilities.



## Government as an enabler

This pillar includes Infrastructure, Skills, Data, and Innovation as Dimensions.

## 4. Innovation

#### a. Analysis

Second, given the dynamic, non-static, and competitive nature of the current international landscape, it is crucial for Viet Nam to maximize its late-mover advantages by emphasizing science and technology diplomacy and leveraging its existing relations with great technological powers such as the United States, China, and the United Kingdom. This approach is essential for positioning Viet Nam as a key player in the global AI arena, fostering international collaboration, and ensuring the country can leverage advancements in AI and related technologies. Considering the Viet Nam National AI Strategy's significant emphasis on diplomatic efforts to foster international cooperation in AI research, application, and technology transfer, it is essential to provide a more explicit and focused delineation of the responsibilities assigned to the Ministry of Foreign Affairs within the strategy. This effort might also help to tackle the gaps in cross-ministerial collaboration, which are critical for advancing national science and technology diplomacy (PM, 2021).

By explicitly delineating the roles and responsibilities of the Ministry of Foreign Affairs, the national AI strategy can ensure a more cohesive approach to technology diplomacy. This would involve defining specific tasks such as negotiating international AI agreements, facilitating technology transfer partnerships, and representing Viet Nam in global AI forums. Such a structured approach would enhance Viet Nam's ability to engage with international stakeholders, attract foreign investment in AI, and contribute to global AI governance.



## **Government** as an enabler

This pillar includes Infrastructure, Skills, Data, and Innovation as Dimensions.

## 4. Innovation

#### a. Analysis

In terms of funding, the allocation and utilization of the state budget, as well as the funding for research topics and scientific and technological projects, are managed similarly to the procedures for basic construction investment projects. To initiate research, it is necessary to prepare a budget estimate and explanatory notes, which must be reviewed and approved by the relevant authorities. These are then compiled into a list, summarized, and included in the government's annual budget proposal submitted to the National Assembly. Once approved by the National Assembly, funding is allocated in the following year (Nguyen Q., 2023).

In principle, the fund mechanism under the Science and Technology Law can facilitate the allocation and use of the state budget for scientific and technological research. In this framework, once a research project is approved, funding is immediately allocated through scientific research funds. In areas where such funds are not available, the budget is provided through the responsible agency, but managed according to the fund mechanism. The government allocates funds based on projected allocations, without requiring a list of pre-approved tasks, and disbursement occurs in alignment with the project's progress and the practical research needs.



## Government as an enabler

This pillar includes Infrastructure, Skills, Data, and Innovation as Dimensions.

## 4. Innovation

#### **b. Recommendations**

(1) Shift the Focus to Applied Research with a Trial-and-Error Approach: Transition the focus from purely academic research to applied research that directly addresses practical challenges and opportunities within Viet Nam. This shift will ensure that Al initiatives have a tangible impact on improving sectors such as healthcare, agriculture, and infrastructure. To foster innovation and progress, implement a trial-and-error approach in the funding approval process. This would allow early-stage research projects to receive initial, smaller funding allocations, with additional funding contingent on successful milestones or proof-of-concept results. This flexible funding model will enable researchers to experiment and pivot as needed, without the fear of being locked into rigid, long-term budgets before results can be fully evaluated.

(2) Foster Academic-Industry Partnerships: Encourage partnerships between academic institutions and the private sector to ensure that research is aligned with industry needs and has a clear pathway to commercialization. These collaborations will help bridge the gap between theoretical research and practical, scalable solutions. Support such initiatives by providing flexible funding options that allow for iterative testing and refinement of AI technologies in realworld settings.

(3) Broaden Stakeholder Involvement: Involve a broader range of stakeholders, including private sector representatives, researchers, government agencies, and international experts, in the development of Al-related legal frameworks and strategies. This collaborative approach will ensure diverse perspectives are considered, which is crucial for creating policies that are comprehensive and effective. Additionally, the funding approval process should integrate feedback from these stakeholders, allowing for dynamic adjustments based on their insights and real-time needs.



# **Ethical Al**

#### 1. Accountability

#### a. Analysis

Al actors should be accountable for the proper functioning of Al systems. They should be accountable to citizens through mechanisms such as the right to challenge public sector algorithms, and accountable to institutions through AI ethics policy frameworks, strategies and targets.

The overall AI Readiness phase for accountability is Systematic (2.3) which implies: Viet Nam has demonstrated a strong commitment to developing ethical frameworks for AI, with accountability is considering a key pillar of its approach. Yet, in practice, these efforts are still limited. Vietnamese government agencies, such as the Ministry of Science and Technology, are actively engaging in international collaborations to learn and establish ethical AI frameworks (Giang, 2024). Notably, these efforts include partnerships with UNESCO, which provide valuable insights and guidance from global best practices.

9.4. Does any legislation include the legal right to opt out of or challenge a decision made based on an algorithms used by the public sector



# Figure 14: Survey Results on legislation for Challenge Al-based Decisions in the Public Sector

Academic experts and the private sector are playing a crucial role in refining and enhancing these ethical AI frameworks by regulatory advisory and policy advocacy. Their contributions help to ensure that the frameworks are robust, practical, and aligned with the latest technological advancements. Furthermore, public consultations are being conducted to gather input on policies related to AI ethics. These consultations reflect the government's commitment to inclusive and participatory policymaking, ensuring that diverse perspectives are considered in the formulation of AI policies. By involving various stakeholders, Viet Nam aims to create a balanced and effective ethical framework that can guide the responsible development and deployment of AI technologies.



# **Ethical Al**

## 1. Accountability

## **b.** Recommendations

(1) Building ethical frameworks implementing mandatory impact assessments for AI projects to evaluate potential social, economic, and environmental effects.

(2) Building ethical frameworks requiring robust feedback mechanisms for users and stakeholders to report issues and provide input on AI systems.

(3) Building ethical framework with clear responsibility Allocation:

Guideline with clear roles and responsibilities to individuals and teams involved in AI projects.

Establish a clear chain of decision-making process in who is responsible for addressing issues and making decisions related to Al.

(4) Create a feedback mechanisms where users and involved stakeholders could report concerns, provide feedbacks, and raise questions regarding AI products.

(5) Conduct regular audits and reviews of AI systems to ensure they are functioning as intended and adhering to ethical and legal standards.



# **Ethical Al**

## 2. Inclusivity

## a. Analysis

Artificial Intelligence (AI), like other transformative technologies, holds the potential to advance the inclusion of underrepresented populations while addressing economic, social, gender, and other forms of inequality. This goal should be integrated into the design of AI systems, as well as in the formulation of policies and service frameworks.

In Viet Nam, the AI readiness phase for inclusivity is currently at the "Systematic" level (2.7), indicating that efforts to promote inclusivity are evolving in tandem with those aimed at enhancing accountability. The Vietnamese government has demonstrated a strong commitment to developing AI technologies that are inclusive, aligning with global ethical standards, with efforts including risk classification methodologies, and comprehensive approaches to AI governance, with a particular focus on inclusivity.

These priorities are being incorporated into various documents, which is expected to lay the groundwork for a robust regulatory framework. In particularly, ministerial documents such as Decision No. 1290/QD-BKHCN, which outlines principles for the research and development of responsible AI systems, emphasize a human-centric approach to AI. This approach advocates for the development of AI technologies that not only respect human rights but also promote accessibility and equity across various social groups. While these documents may not yet provide specific actionable measures, they clearly signal Viet Nam's intention to ensure that the benefits of AI are equitably distributed among diverse communities, particularly those that have been historically underrepresented.



# **Ethical Al**

## 2. Inclusivity

## **b.** Recommendations

(1) Establish Clear Inclusivity Guidelines and Standards to explicitly address the need for inclusivity in AI systems within and without public sector. These standards should focus on minimizing bias and ensuring that AI technologies in the public sector benefit all groups, particularly marginalized communities. Mechanisms might include principles for diverse data collection, algorithmic fairness, and bias detection, ensuring that AI systems do not inadvertently disadvantage specific groups based on gender, race, socioeconomic status, or disability.

(2) Engage Diverse Stakeholders in the Design Process to ensure that AI systems address the needs and interests of all social segments and help avoid reinforcing existing inequalities.

(3) Promote Digital Literacy and Inclusion Programs to ensure equitable access to technology for all citizens, particularly those in rural or economically disadvantaged areas. Efforts might include providing educational resources and skills training to equip vulnerable populations with the knowledge and tools to interact with and benefit from Al-driven services.

(4) Monitor, reevaluate and Adjust AI Systems for Social Impact to track the real-world outcomes of AI deployments, particularly focusing on how different social groups are affected. Regular audits, impact assessments, and public consultations should be conducted to identify any disparities in service delivery, access, or outcomes for different populations. Based on these evaluations, AI systems should be adjusted and refined to ensure ongoing inclusivity and to address any unintended negative consequences.



# **Ethical Al**

## 3. Safety

## a. Analysis

In both the public and private sector, the management of the risk associated with AI systems should be considered, to prevent malicious or unintended use, as well as reducing any potential existential risk that may arise.

The AI Readiness phase for safety is currently classified at an Opportunistic level (1.8) indicating. Safety is also a key pillar in Viet Nam's consideration of its AI Ethical Framework. The controlled experimental mechanism and AI risk classification framework are currently being discussed in the drafting process of the Digital Technology Industry Law. However, Viet Nam is still in the early stages of developing policy frameworks and guidelines related to ethical AI, resulting in limited specific guidance within the government or in particular industries.



Figure 15: Survey Results on Government financial support for AI safety research



# **Ethical Al**

3. Safety

## **b.** Recommendations

(1) Adopt Robust Risk Assessment and Mitigation Frameworks to address potential system failures. These frameworks should also consider emerging risks such as algorithmic bias, misuse of Al technologies, and unintended societal impacts, ensuring that potential threats are proactively managed.

(2) Establish AI Safety Governance Structures to monitor and enforce safety standards for AI technologies. Efforts might include establishing oversight bodies responsible for ensuring that AI systems comply with ethical guidelines, conduct regular audits, and address potential safety concerns,

(3) Establish Dedicated Safeguards for Vulnerable Populations such as low-income groups, women, racial minorities, and people with disabilities, from potential harm caused by AI technologies. These safeguards could include heightened transparency, additional data privacy protections, and the establishment of accessible mechanisms for marginalized groups to report harm or discrimination by AI systems. This ensures that AI technologies do not exacerbate existing social inequalities or negatively affect those already at a disadvantage.



# **Ethical Al**

## 4. Transparency

## a. Analysis

Al actors should provide clear, accessible, and meaningful information to promote public understanding of Al systems, ensuring stakeholders are fully informed about when and how they might be impacted by Al technologies. This includes providing transparency regarding the scope, purpose, and limitations of Al systems, as well as the potential risks and benefits they may introduce. Furthermore, citizens should be informed about the decision-making processes behind Al systems, including the rationale for specific outputs or decisions. Whenever possible, Al systems should include features that allow individuals to understand the reasoning behind particular outcomes, thus promoting trust and accountability.

Viet Nam's AI Readiness phase for transparency is currently classified at an "Opportunistic" level (1.7), indicating that while some steps toward transparency have been initiated, there is still a significant gap in the full implementation of transparency measures across AI systems. Transparency is also a critical component of Viet Nam's AI Ethical Framework, as the country seeks to ensure that the development, testing, and deployment of AI systems are documented as part of robust risk prevention and management processes. However, a comprehensive and detailed transparency guide has yet to be universally adopted within the government or across the broader economy. There is a need for further work to standardize and integrate transparency practices into AI governance frameworks at all levels of government and business sectors, ensuring alignment with international best practices.



# Ethical AI

## 4. Transparency

## **b.** Recommendations

(1) Establish Clear Ethical Frameworks Open for Communication encourage continuous and to transparent communication between AI developers, public agencies, and stakeholders, including affected individuals and communities. These frameworks should outline clear protocols for informing the public about the objectives, processes, and potential impacts of AI systems throughout their lifecycle. Regular updates and engagement should be prioritized to ensure stakeholders are kept informed about how AI are evolving and the implications technologies of these developments on their rights and lives.

(2) Invest in Explainable AI (XAI) Technologies, particularly those used in high-impact areas such as healthcare, law enforcement, and finance, should be designed to clearly articulate the reasoning behind their decisions in terms that are understandable to the users. AI developers should incorporate user-friendly explanations of decision-making processes, using visualizations or simple language to ensure that users can grasp how and why a particular outcome was produced.

(3) Create and Publish Comprehensive Documentation for Al Systems, including detailed information on its design, the data used for training, the algorithms and models implemented, and the decision-making criteria applied. This documentation should include transparency about any potential biases in the system, as well as how they are being mitigated. The goal is to ensure that AI systems are open to scrutiny and that stakeholders have access to clear, understandable technical information when needed.

(4) Establish Independent Oversight and Accountability Mechanisms to regular reviews and evaluations. These entities should have the authority to assess AI systems' compliance with transparency, fairness, and safety standards, as well as their real-world impact. Independent oversight should be designed to foster an environment of continual improvement, identifying areas where AI systems might fail to meet transparency goals or where they might inadvertently harm vulnerable communities.



# Strategic recommendations

#### Government as a user of AI

(1) Develop a Holistic National AI Strategy with Inter-Agency Collaboration within government: Design a coordinated national AI strategy that aligns investments in infrastructure, core technologies, and data systems across government agencies. This strategy should focus on fostering inter-agency collaboration, particularly to assess the current state of resources and prioritize AI initiatives in alignment with public sector goals.

(2) Strengthen the Legal and Regulatory Framework for governmental AI adoption: Update and expand legal frameworks (especially Decree 82) to create an adaptable, forward-looking legal foundation that addresses the unique challenges posed by AI technologies in the public sector. This should include provisions for data sharing, AI ethics, intellectual property, and public safety.

(3) Invest in a Comprehensive AI Talent Development Pipeline within government: Build a sustainable AI talent pipeline within the government by investing in internal team development and fostering partnerships with academic institutions. Focus on both technical and leadership capabilities through targeted training programs, workshops, and AI fellowships.

(4) Enhance National Data Ecosystem and Integration: Launch a national data modernization initiative to digitize, standardize, and integrate datasets across all levels of government. This should include both internal data (government databases) and external data sources, ensuring seamless integration for Al-powered solutions.

(5) Create a Roadmap for Phased AI Adoption Across Government: Develop a strategic, phased roadmap for AI integration at both the national and agency levels. This roadmap should emphasize demand-driven AI solutions, focusing on where AI can bring the most immediate value (e.g., public service delivery, data analytics, decision support systems).



# Strategic recommendations

## • Government as an enabler of Al

(1) Foster a National Talent Attraction and Retention Program: Launch a National AI Talent Attraction and Retention Program to position the country as a global hub for AI expertise. The program should offer competitive salaries, tax benefits, and streamlined visa processes to attract AI professionals both domestically and internationally. The program should seek to provide equal opportunities to vulnerable groups that have more barriers entering STEM field such as women, ethnic minorities, people with disabilities. Additionally, partner with leading international universities and research institutions to offer AI fellowships and research exchange programs.

(2) Support Applied AI Research and Commercialization: Shift the focus of AI research funding from purely academic research to applied research that addresses practical challenges within the country's key industries (e.g., agriculture, healthcare, manufacturing). The government should foster partnerships between academic institutions, private sector players, and research organizations to ensure that research projects are aligned with the market needs and have clear pathways to commercialization.

(3) Build Strategic International Alliances for AI Development: Strengthen the country's role in the global AI ecosystem by forming strategic alliances with leading AI nations, international research bodies, and global tech companies. These alliances should focus on knowledge exchange, collaborative research, and shared AI infrastructure, while ensuring alignment with international AI ethics standards and regulations.



# Strategic recommendations

## • Ethical Al

(1) Establish a Comprehensive AI Ethics Oversight/Research Body with Clear Impact Assessment Protocols: Establish a national or governmental AI Ethics Oversight Body tasked with overseeing the ethical development, deployment, and use of AI across sectors. This body would implement clear mandatory impact assessments for all AI projects, ensuring that they are evaluated for social, economic, and environmental effects. Additionally, the body should be responsible for setting up feedback mechanisms that allow users, stakeholders, and the broader public to report issues and provide input on AI systems throughout their lifecycle.

(2) Establish Governmental-Level Ethical AI Guidelines for the AI Ecosystem: Develop and implement national AI ethical guidelines that establish clear principles for AI development, deployment, and use across industries. These guidelines should cover areas such as accountability, inclusivity, transparency, and safety, and be applicable to both public and private sector AI projects. The government should also ensure these guidelines are regularly updated to reflect the evolving landscape of AI technologies and their societal implications.


## Conclusion

This report provides an in-depth evaluation of the readiness for AI adoption in the public sector in Viet Nam. It highlights the key factors that influence the development of AI in the country, including strategic direction, policy context, investment funding, financial mechanisms, data and infrastructure, and human resources.

As Viet Nam continues to explore AI integration, there are both risks and opportunities that could shape its future trajectory. On the risk side, technological dependence on external entities, data privacy concerns, potential job displacement, and ethical challenges associated with AI decision-making must be addressed to ensure balanced and sustainable development. These risks require careful management to prevent negative consequences as the adoption of AI expands.

Conversely, the opportunities are significant. All has the potential to revolutionize public sector services, making them more efficient and responsive to citizens' needs. It can also serve as a catalyst for economic growth, positioning Viet Nam as a leader in the regional tech landscape. Furthermore, Al can contribute to sustainable development goals, such as resource optimization and better healthcare delivery. Lastly, the expansion of Al offers a unique opportunity to upskill the workforce, fostering innovation and creating new employment opportunities, which can enhance Viet Nam's long-term competitiveness and growth.

Through a comprehensive analysis of key driving factors, the report identifies Viet Nam's current strengths and weaknesses within its AI development ecosystem. It also offers strategic recommendations to enhance the growth and integration of AI across the broader economy, with a particular focus on its application in the public sector. The insights and recommendations outlined in this report aim to support Viet Nam in effectively leveraging AI technologies, fostering innovation, and driving sustainable development.

The findings and recommendations presented in this report serve as a valuable reference for policymakers, government agencies, and other stakeholders involved in efforts to enhance Viet Nam's AI capabilities, both in the public sector and beyond. This will help ensure the country's successful integration into the global AI landscape.



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