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PAKISTAN'S AI GOVERNANCE FRAMEWORK AND NATIONAL POLICY (2025): A REAPPRAISAL

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Abstract

National Policy on Artificial Intelligence (NP on AI) 2025 is an initiative introduced in July 2025, which can be regarded as the first national AI policy in Pakistan. This policy follows an innovative path to promote socio-economic development as well as digital sovereignty through artificial intelligence. There are six main strategic pillars in this initiative, namely the innovation ecosystem, awareness and readiness, secure and ethical AI, sectoral transformation, distributed Centres of Excellence, and a National AI Fund. Some of the targets set by this initiative include training one million AI professionals by 2030, having distributed Centres of Excellence, developing a National AI Fund, and establishing regulatory sandboxes. On the other hand, this national policy on AI has several advantages when compared to most of the Global South policies regarding AI, but there are still some important flaws present in this policy. The reappraisal is pitting Pakistan's policy against the resource-based IndiaAI Mission, state-led controls in China, rights-based policy in Sri Lanka and the sectoral focus in Bangladesh, and reveals the comparative advantages of the Pakistani policy in terms of ethical intent but also some feasibility limitations due to fiscal, energy and coordination realities. Based on the analysis, the following are required to realize the full potential of aspirational commitments to achieve resilient and equitable use of AI that can narrow digital divides and build national resilience in an increasingly polarized global context: strengthening data-protection linkages; clarifying institutional architecture; developing independent monitoring dashboards; introducing green benchmarks; and deepening multi-stakeholder

engagement. This review aims to deliver a comprehensive assessment of the key strengths and areas for improvement in the country's AI policy, highlighting the essential components for reaching its objectives. This review seeks to provide a comprehensive analysis of the strengths and weaknesses of the national AI policy and pinpoint the crucial elements of the policy necessary for achieving its goals.

Keywords: *National AI Policy 2025, Ethical AI Governance, Digital Inclusion, Institutional Fragmentation, Human-Capital Development, Global South AI Strategy.*

Introduction

The international AI governance landscape has evolved rapidly from loose declarations of ethical principles to being country-by-country dominated by more prescriptive and enforceable risk-associated tiered regulatory regimes driven by geopolitical rivalry and massive economic considerations. The European Union's Artificial Intelligence Act entered into force in 2024 and will come into full effect between 2025-2027 and implements a comprehensive risk-based taxonomy with requirements around transparency, human oversight and even bans systems where this is unacceptable. This is the gold standard for rights-based accountability (International Association of Privacy Professionals, 2026). By contrast, the US in the Trump administration is deregulating, with executive orders that remove previous protections to encourage innovation and infrastructure, resulting in record private sector spending of \$109.1 billion in 2024, more than twelve times that of China. China promotes a state-oriented approach with compulsory requirements for generative-AI labelling, and data controls on generative-AI lifecycle introduced in 2025, placing ethics at the service of the nation and the industrial domination. In 2024, the world saw a huge surge in corporate investment in AI, totaling \$252.3 billion, with generative AI investments alone accounting for \$33.9 billion, representing an 18.7 % increase, and indicating the shift of AI from experimentation to becoming a core part of organizational infrastructure (Maslej et al., 2025). This environment of polarization offers an opportunity and a risk for developing countries: these mechanisms need to go beyond regulation to ensure inclusive growth, taking into account the ethical recommendations of UNESCO, while addressing digital divides

and the lack of infrastructure. (UNESCO, 2026). These trends highlight the need of policy action in this space that is smart, contextually appropriate, and feasible.

The National AI Policy 2025, approved by the federal cabinet on 30 July 2025, under Prime Minister Shehbaz Sharif, led by the Ministry of Information and Telecommunication, is the first comprehensive national policy to leverage the potential of AI in Pakistan for a knowledge-based economy. Grounded in six key strategic pillars, such as: an AI ecosystem based on the National AI Fund, geographically dispersed Centers of Excellence, and venture capital firms; awareness and preparedness through training one million professionals until 2030, 200,000 each year, along with 3,000 scholarships and nationwide campaigns for literacy; a secure and ethical ecosystem encompassing regulatory sandboxes, an AI Directorate, and cyber security practices; transformation across sectors such as health, education, agriculture, and governance; infrastructure that includes a national computing grid and integrated data platforms; and international cooperation within global standards (Government of Pakistan, 2025; Islam, 2025). It highlights the importance of public-private-academic collaboration, gender and youth integration, and tangible results like 50 000 civic AI projects, making AI a force for inclusive prosperity in a country where 64 % of its population is below 30 years old. The policy is the bedrock of Digital Nation Vision, explicitly moving away from ad hoc pilots and moving towards building an ecosystem and its success will depend on how these pillars become operational within the current resource scarcity (Rao, 2025).

A comprehensive reappraisal of Pakistan's AI Governance Framework and National Policy (2025) is both timely and essential, given the early signs that implementation of the policy is failing to achieve the targets set by the policy in terms of institutional, infrastructural and enforcement gaps. The policy's measurable targets for human-capital, the structured pillars, and its pro-innovation orientation position it positively against other South Asian policies, but sloppy legal enforcement, the impending Personal Data Protection bill, a lack of coordination, under-investment in compute infrastructure, and the potential for digital

divides between cities and villages also threaten to focus the benefits on the elite and to undermine public trust (Islam, 2025; Akhtar, 2025). This paper, therefore, takes a critical look at the governance level of the policy at the global level (EU risk-based regulation, U.S. innovation-first policy and Chinese state-led policy) and assesses the operational feasibility of its three pillars in the context of Pakistan's bureaucracy and resources before suggesting targeted institutional strengthening, sustainable funding and an inclusive implementation of the policy. The study not only points towards the realization of the policy intention but also introduces a South perspective to the debate of responsible AI governance, thus ensuring that Pakistan's digital transformation contributes to the country's overall long-term, equitable, accountable, and sustainable development without further fueling fault lines.

Literature Review

In 2025-26, the AI governance world is divided, with conflicting visions for innovation and control, and rights protection. The European Union's AI Act, which took effect in August 2024, has been implemented in stages, with restrictions on high-risk uses of AI coming into effect from February 2025 and general-purpose AI (GPAI) obligations, such as transparency and systemic risk assessments, from August 2025 (European Commission, 2025). This risk-stratified approach prioritises basic human rights, human control and mandatory conformity assessments for high-risk systems, laying down the ground rules for rights-based governance, while continued guidance is published in July 2025 on GPAI models. By contrast, China is moving with a more fragmented but aggressive pace by releasing the AI Plus Action Plan in August 2025, which calls for the use of AI throughout various sectors, as well as national security and ideological concerns; and draft regulations for ethical management of AI activities and mandatory labelling of AI-generated content are also being pushed forward to tighten lifecycle oversight, but a comprehensive AI law was not included in the 2025 legislative calendar (The State Council of China, 2025). China's model is more based on industrial dominance and limits individual rights, requiring prior approval for generative AI and watermarking to prevent misinformation. India's IndiaAI Mission, established in 2024 with a funding of ₹10,372

crore, aims to build a mission-driven ecosystem consisting of seven pillars: Compute capacity (10,000+ GPUs), Innovation centers for indigenous multimodal models, datasets, future skills, Startup funding, Safe AI governance, and AI applications in priority sectors (Ministry of Electronics and Information Technology, India, 2025). A pro-innovation approach, focusing on sovereign measures and responsible use through guidelines published in November 2025, integrates the economic drive with moral constraints, but does not include enforceable bans like those in the EU. These are all tripartite structures, rights-focused (EU), state-dominated (China), and development-sovereign (India), establishing important benchmarks for the emerging economies facing resource limits and geopolitical challenges.

AI strategies in South Asia show mixed levels of maturity and different focus areas in terms of inclusivity, infrastructure and cooperation. India's IndiaAI Mission is the most complete with its seven-pillar strategy of access to compute power, access to quality datasets, talent pipelines (including doctoral and basic training fellowships), ethical governance (transparency and accountability), and so on (Government of India, 2025). Bangladesh has implemented a National AI Policy (2024-2025) that includes a sectoral emphasis, such as in the banking sector, where a strategy was created to develop in-house large language models for data security, and risk management as well as sustainability (Bangladesh Bank initiatives, 2025) were highlighted. In the face of economic recovery limitations, ethical frameworks, public-private partnerships and capacity building are highlighted in Sri Lanka's National AI Strategy and 2024 AI White Paper. Comparative analysis reveals that among the policies of other countries in South Asia, Pakistan's policy is unique in its explicit ethical approach to data governance and human rights orientation, while other policies exhibit implementation gaps, funding issues, and lack of regional coordination, compounded by geopolitical tensions which prevent cooperation between the SAARC countries (Rao, 2025). While there is a shared focus on talent development and sectoral transformation (such as agriculture, health), the level of regulatory development differs with India having mission-oriented funding, and more nascent approaches in Bangladesh and Sri Lanka where enforcement remains aspirational. This uneven terrain highlights

the importance of adapting policies in order to take advantage of the demographic opportunities offered by young population, but also of facing the digital divide and infrastructure constraints that affect the entire subcontinent.

Previously, the National AI Policy 2025, adopted in July 2025, has been analyzed in Arabic, praising its structured framework that spans six pillars, serving as a blueprint for building the ecosystem in a resource-constrained environment. The pillars include an innovation ecosystem (National AI Fund and distributed Centres of Excellence), awareness and readiness (by training 1 million professionals by 2030), secure and ethical AI (regulatory sandboxes, AI Directorate, cybersecurity), and sectoral transformation (sectoral initiatives such as the health, education, agriculture, and governance sectors). It is distinguished from its peers in its rights-respecting deployment approach rather than its approach of pure acceleration, with strengths being the ethical emphasis, explicit commitments to transparency, bias mitigation, privacy, and inclusivity (women, youth, and rural areas) highlighted in the critiques (Institute of Strategic Studies Islamabad, 2025). The emphasis on public-private-academic cooperation and tangible outcomes (e.g., 50,000 civic projects) places AI in a position to be a socio-economic leveler. There are still persistent limitations to be found, including overly ambitious timelines that risk for symbolic adoption without adequate funding or oversight, regulatory overlaps between the AI Directorate and sectoral regulators, and lacking data/compute standards and absence from binding privacy legislation (Digital Rights Foundation, 2025). These reviews describe this policy as somewhat progressive and flaky, which must be backed by strong institutional support and morals to make it transformative.

Taken as a whole, the literature demonstrates that international and regional policies offer an exemplary model of the rights-based approach to the issue (EU), the sovereign scaling of the state's capabilities (India), and strict regulation under the auspices of national security (China). The 2025 policy offers a fresh perspective by introducing the new dimension of ethical governance and the creation of an inclusive ecosystem of development in the context of the Global South. Yet, there is a

pattern of criticisms concerning the challenges related to the implementation of the policy and associated risks, including institutional fragmentation, lack of infrastructure, and deficiencies in human capital that can undermine one or more of its pillars if not addressed via targeted pilot projects, improved funding, and compliance with the international standards (PIDE Knowledge Brief, 2025).

Problem Statement

While the National Artificial Intelligence (AI) Policy 2025 outlines clear aims and a well-structured framework consisting of six pillars, there is a huge gap between the vision and its implementation that may make the proposed reforms impossible to achieve. The policy aims at training a million AI practitioners by 2030, developing the Centres of Excellence in a distributed manner, creating a national fund for artificial intelligence initiatives and promoting ethical and inclusive application of AI but faces implementation amid challenges such as lack of appropriate infrastructure, unstable electricity supply and inadequate broadband access along with insufficient digitization of data. All these difficulties only exacerbate the disparity between urban and rural regions, depriving the latter from the advantages offered by AI advancements and widening regional differences. Moreover, the absence of strong and robust privacy, bias mitigation and algorithmic accountability policies places citizens at risk of over-surveillance, inequitable outcomes in sectors like health and law enforcement, and unchecked exploitation of their personal information, undermining trust and ethics of governance.

These are further complicated by institutional and resource factors in making them effective. Overlaps of the policy's governance framework with the current sectoral regulations; unclear mechanisms of enforcing the policy; no dedicated resources and independent monitoring. If the deliverables are too ambitious and quantifiable, they can lead to symbolic adoption, with no strong political support, budget or mechanism for addressing the issues of talent attrition, lack of trainers and bureaucratic lethargy. Other vulnerabilities in sustainability such as the high carbon footprint and the requirement for high amounts of energy and water for the operation of AI systems in a water constrained country accentuate

the need for sustainability gaps to be filled. The gaps require prioritized pilots, strengthening legal backbones, engaging a wider stakeholder base and feasible resource planning to ensure the policy can deliver equitable socio-economic outcomes, otherwise Pakistan may find itself playing catch up with the rest of the region in terms of digital progress and continue to be a source of marginalized and privileged groups.

Research Objectives

1. To critically assess the design, coherence, and global alignment of Pakistan's National AI Policy 2025 governance framework and its six pillars, highlighting key strengths and limitations in a resource-constrained context.
2. To evaluate the feasibility and effectiveness of the policy's core mechanisms (e.g., National AI Fund, sandboxes, Centres of Excellence, training targets, ethical safeguards) against Pakistan-specific barriers such as infrastructure gaps, regulatory voids, and institutional fragmentation.
3. To recommend targeted, realistic reforms in institutional design, financing, regulation, and inclusivity to improve implementation and ensure equitable, sustainable AI impact aligned with national development goals.

Research Questions

1. How does Pakistan's National AI Policy 2025 governance structure and six pillars compare to leading international and regional frameworks, and what are its main design strengths and weaknesses?
2. To what degree do infrastructure deficits, data protection gaps, bureaucratic overlaps, funding constraints, and digital divides threaten the policy's key targets and deliverables?
3. What specific institutional, regulatory, financial, and inclusivity reforms are needed to convert the policy's vision into effective, equitable, and responsible AI adoption in Pakistan?

Methodology

Qualitative policy analysis methodology will be used to conduct a critical evaluation of the National Artificial Intelligence Strategy (NP) 2025 and National Artificial Intelligence Governance Framework of Pakistan. The methodology comprises three well-defined and complementary techniques that, when used

collectively, provide analytical depth, rigorousness, triangulation, and contextual relevance.

Primary Document Analysis

The national study relied upon National Artificial Intelligence Policy 2025 ratified with consensus by Pakistan's Federal Cabinet on July 30, 2025. The Policy was launched by Pakistan's Ministry of Information Technology and Telecommunication (MoITT). Content analysis was conducted through systematic coding around its six Pillars of Development, governance mechanisms recommended (AI Directorate, regulatory sandboxes, inter-ministerial coordination mechanisms), targets articulated (one million artificial intelligence workforce to be trained by 2030, 50,000 civic AI initiatives to be completed), implementation approach, and cross-cutting themes such as ethical governance, inclusion (women, youth, rural communities) and vertical impact (health-tech, education technology, smart agriculture, and public governance). This assisted in mapping out coherence logic between internal components, external benefits, ambiguity, over-optimistic conjectures and implementation vulnerabilities.

Comparative Policy Benchmarking

In order to assess the comparative value of Pakistan's strategy amidst international and regional policy context, the comparative benchmark analysis has been conducted considering selected peers' and leading-country policies. The comparison focused on:

- India's IndiaAI Mission (seven-pillar ecosystem with sovereign compute scaling and talent development targets);
- the European Union's AI Act (risk-stratified obligations and phased enforcement timeline 2025–2027);
- China's AI Plus Action Plan and generative AI lifecycle measures (state-directed security and industrial priorities);
- Emerging frameworks in Bangladesh (sectoral focus and banking AI initiatives) and Sri Lanka (ethical white paper and public-private emphasis). This method highlighted convergences and divergences in regulatory philosophy, institutional design, resource commitments, enforcement mechanisms, and approaches to equity and digital sovereignty, providing benchmarks for assessing ambition, feasibility, and alignment.

Thematic Evaluation of Secondary Sources

A thematic review was conducted of second-party documents in compliance with Braun & Clarke's six phases of thematic analysis framework. The material under analysis encompassed think tank reports/issue briefs, policy critiques, government press releases and official statements from ministers, early updates on implementation, as well as academic commentary. Codes for thematic review revolved around persistent concerns and problems related to ethical enforcement gaps, feasibility concerns (infrastructure and fiscal), and coordination issues within institutions and with other stakeholders, funding limitations, lack of inclusiveness, sustainability risks, and public trust issues. The triangulation among the policy document, comparative benchmarking, and second party documents ensured validity, reduced the risk of one-sidedness, and contributed to a richer interpretative reappraisal.

Supplementary Content Analysis and Scope Limitations

Whenever relevant, specific content analysis of public announcements, ministerial communiqués and documented implementation progress in the early stages (early 2026) was included to reflect any changes in dynamics emerging during implementation. The study is a desk study, lacks primary empirical research (expert interviews, stakeholder surveys, field research). The design is multi-method qualitative and is relevant for policy reappraisal as it enables a balanced and evidence-based understanding of the comparative positioning of the framework, and embedded recommendations into Pakistan's unique bureaucratic, infrastructural, fiscal and socio-political context.

Overview of Pakistan's National AI Policy

The National Artificial Intelligence Policy 2025 is a major step in advancing Pakistan's transformation into a knowledge-based economy in the global south. The 28-page document was approved by the federal cabinet on 30 July 2025 under Prime Minister Shehbaz Sharif, leading by the Ministry of Information Technology and Telecommunication, is the country's first comprehensive national strategy for AI (Government of Pakistan, Ministry of IT & Telecommunication, 2025; Dawn, 2025). The policy is designed specifically to counter the quick and rapid growth of AI technology around the world and to overcome this

youthful demographic dividend by Pakistan by not opting for ad-hoc pilots but structured transformation across the entire ecosystem. The 6 pillars of the innovation ecosystem, awareness and readiness, secure and ethical AI, sectoral transformation, nationwide infrastructure, and international collaboration are interconnected and create a unified framework that combines technological vision with ethical considerations and socio-economic integration. The approval process of the AI Act, which coincides with the EU AI Act's phased implementation and the IndiaAI Mission's scaling, underscores Pakistan's commitment to a more proactive approach to managing AI than the reactionary digital policies of the past.

The policy's core engine of creation and commercialization is the first pillar, a strong AI innovation ecosystem. It proposes a National Artificial Intelligence Fund (NAIF) which would provide an additional 30% of the ongoing allocation of Ignite R&D along with an AI Venture Fund and innovation grants to support startups and indigenous solutions (Islam, 2025). Such a financial structure is further supported by the existence of Centres of Excellence spread throughout seven different major cities that will act as regional nodes where the applications of artificial intelligence can be applied, tested, and scaled down within the context of these regions. They do not merely serve as means of funding, but are also an intentional attempt to bring about a brain circulation rather than a brain drain from Pakistan. The emphasis of the three-way partnership between the government, the private sector, and academia discussed in this pillar is indicative of the uniqueness of such a policy (Rao, 2025).

The second pillar is about awareness and readiness, and aims to make AI literacy accessible to all by establishing ambitious yet measurable objectives. The policy aims to train 200,000 AI professionals annually until one million by 2030, 3,000 through scholarships, 20,000 through paid internships and 90 percent of the population nationwide through awareness campaigns by 2026 (Islam 2025). There is special attention to women, youth, rural communities and marginalized groups, to avoid elite capture and ensure inclusive participation. This pillar understands that technological infrastructure is not enough without the workforce

having a digital mindset; as such it includes the inclusion of AI concepts into STEM education from the early years of schooling, as well as upskilling programmes for public servants. This ambition level places Pakistan in the ranks of the most ambitious emerging-market strategies in talent development that directly address the critical shortage of AI-ready professionals that has been a major impediment to digital transformation in Pakistan in the past (Institute of Strategic Studies Islamabad, 2025).

The third pillar outlines the development of a robust and responsible AI environment to protect rights and public trust amid history of data-privacy issues. It suggests the creation of an AI Directorate for providing guidelines, establishing ethical principles and preventing misuse, including misinformation and algorithmic bias. New AI systems are tested in regulatory sandboxes before going into full production use, and cyber security measures and transparency are built into the systems' lifecycles (Digital Rights Foundation, 2025). This pillar is explicitly designed to be in line with international good practices while being customized for Pakistan's socio-cultural environment, reflecting the close relationship between ethical governance and the upcoming Personal Data Protection legislation. The policy's design focuses on the need to build trust early on, to avoid the trust issues that have hindered adoption of AI in other contexts, and to transform the potential risks associated with the technology into competitive opportunities through responsible innovation.

All other pillars of the policy such as sectoral transformation, national infrastructure development, and international cooperation add to the picture. The policy envisions a number of prioritized road maps and pilot project plans in specific sectors such as health care, education, agriculture and governance. In order to tackle the problem of insufficient availability of computational resources in a national setting, the plan proposes a nationwide infrastructure that will include establishment of a national compute grid, central data repositories, and artificial intelligence centers. In terms of international cooperation, the plan aims at building common ground for collaboration in terms of research, technological transfer, standardization in order to facilitate the learning curve (Arab News, 2025; Paradigm Shift, 2025). Together all these

elements (National AI Fund, Centers of Excellence, Regulatory Sandboxes, and Human Capital) form a synergic system which makes the plan so effective because the whole system rather than separate elements is what ensures success.

Critical Analysis of the Governance Framework

Unlike the other strategies of the Global South, the National AI Policy 2025 in Pakistan explicitly mentions ethical governance as a fundamental component of AI governance. The policy explicitly includes the principles of human rights, transparency, bias mitigation and accountability in the secure and ethical AI pillar, suggesting that, from the beginning, there should be an AI Directorate and regulatory sandboxes to operationalize these principles. This rights-respecting attitude, combined with a pro-innovation approach that places a high value on public-private-academic partnerships and venture capital, leads to a novel “innovation with guardrails” model that is not found in emerging-market frameworks. Most significantly, the policy makes measurable human-capital goals with a target of one million professionals trained by 2030 and 200,000 per year, as well as nationwide awareness campaigns linking to a geographically dispersed network of Centres of Excellence in seven cities, reflect an ambition to democratise, rather than centralise, AI. Elements are indicative of strategic foresight, trying to capitalize on a demographic advantage but also based on the UNESCO's ethical recommendations on inclusion and sustainability. Pakistan is leading the way in conceptual maturity in the framework's overall coherence across six pillars, which indicates a systemic vision, not piecemeal, ahead of many other countries in the region (Institute of Strategic Studies Islamabad, 2025; Rao, 2025).

But this architectural beauty is hiding serious shortcomings in the functioning of the governance structures that could threaten to destabilise the whole structure. The biggest flaw is still institutional fragmentation: the proposed AI Directorate has weak enforcement powers, with inevitable overlaps in authority with sectoral regulators and provincial bodies, and sandboxes and ethical guidelines have no binding power as there is no dedicated AI law. In particular, data governance is poorly developed; although there are frequent mentions of privacy and cybersecurity, the policy doesn't tie itself to the long-awaited legislation on Personal Data

Protection, leaving citizens vulnerable to algorithmic bias, overreach in surveillance, and unrestricted commercial use of their data. Likewise enforcement is lacking, with no requirement for human-rights impact assessments or independent enforcement bodies. Environmental and sustainability considerations are virtually absent, and a rights-based analysis reveals the need for explicit environmental impact requirements, while ignoring the massive energy and water footprint of data centres and compute infrastructure in a climate-vulnerable, water-stressed country. They exacerbate the constant danger of a symbolic versus substantive adoption – high aspirations and shiny solutions for pilot projects only to be replicated at a later stage, but not at scale, and never on a basis of equality, in the face of chronic underfunding and bureaucratic foot-dragging (Digital Rights Foundation, 2025; Islam, 2025).

In conclusion, strengths and weaknesses of the governance structure demonstrate a common policy paradox: that of having visionary intentions, but fragile institutional structures. The establishment of ethical focus, distributed Centres of Excellence and time-bound targets offer a solid base for inclusive growth but regulatory uncertainty, gaps in the data protection regime, lapses in enforcement and sustainability awareness risk to repeat the common trend of top-heavy digital initiatives that have characterized the previous ICT policies of Pakistan. If the policy is not explicitly tied to a law or regulation that can be enforced, the AI Directorate's enforceability is not backed by the law, there are no independent monitoring dashboards and there are no green AI benchmarks, the policy can easily turn into a good intention that has no measurable impact in reality other than in annual reports. The policy has clearly stated Pakistan's objectives in AI, but structural shortcomings have left the more challenging answer of how it will achieve those goals hanging in the balance (Rao, 2025; UNESCO, 2026).

Comparative Reappraisal and Recommendations

In comparison with the National AI Policy 2025 of other regional countries, it is quite clear that there are certain distinct strengths as well as some serious weaknesses associated with Pakistan in terms of the feasibility of the said policy, which are related to certain social, economic, and infrastructure factors prevailing in the

country. The IndiaAI Mission of India can be seen as being mission-oriented and decentralized in nature and aims at developing indigenous multimodal models, quality datasets, and sectoral precision in agriculture, health, and education, having 10,000+ GPUs as its sovereign compute scaling target, in order to increase the momentum of the ecosystem through focused funding and innovation centers. The state-oriented policies of China, including 2025 Generative Artificial Intelligence Measures and AI Plus Action Plan, impose certain life cycle management and labeling requirements and pre-approval of AI usage for the purpose of achieving national security and domination in the industry, prioritizing large-scale deployment of AI at the national level, but leaving aside individual rights. Nevertheless, Sri Lanka's National AI Strategy as well as 2024 AI White Paper represent the rights-based and participatory approaches with a proposed National AI Center to assist in coordinated pilots and measurements, whereas the National AI Policy (2024-2025) of Bangladesh emphasizes inclusive development, applications in specific sectors (especially banking, involving usage of LLMs for data security) and sustainability under resource limitations. Despite the fact that Pakistan's policy is characterized by strong emphasis on ethical approach, distributed Centres of Excellence, and ambitious investments in human capital, it appears to be poor when compared to the resource-supported Indian model and the more rights-based and conservative models of Sri Lanka and Bangladesh.

A policy-reality gap in Pakistan's context is revealed through feasibility assessment which could jeopardise the transformative potential of the framework. Strong ambitions to train one million professionals by 2030 and to build a national compute grid are structurally threatened by chronic weaknesses in reliable electricity, in high-speed connectivity, especially the rural-urban gap, in the basic digitization of data, and in fiscal capacity to support sustained funding of R&D (currently ~0.2% of GDP). The complex implementation landscape of a fragmented institution with possible overlaps between the proposed AI Directorate, the sectoral regulators, and the provincial institutions further increases implementation risk in a bureaucratic setting with a history of delays and turf wars. Viability is further undermined by

environmental blind spots: AI energy and water requirements are incompatible with Pakistan's climate vulnerability and water scarcity; policies in Bangladesh are based on sustainability and policies in Sri Lanka on participatory protection are lacking. The policy's pro-innovation stance and inclusive language resonates with demographic benefits (64% youths population), but the possibility of achieving scale that is both feasible and impactful is dependent on rolling out the policy in phases, rather than attempting to implement it across the entire country, while avoiding symbolic pilots that fail to produce meaningful results (Islam, 2025; Digital Rights Foundation, 2025).

Specific improvements are needed to make the policy an actionable blueprint into a resilient and inclusive ecosystem. First, to strengthen the linkage to comprehensive data protection, promote the early adoption of the long awaited Personal Data Protection (PDP) legislation as a statutory condition, incorporate mandatory privacy by design, consent patterns, and algorithmic impact assessments into the remit of the AI Directorate to address existing governance gaps. Second, clarify institutional architecture by developing a published rulebook detailing the authority of the AI Directorate, stage-gated funding conditions for the National AI Fund, and setting up a national Train-the-Trainer corps at Centres of Excellence, to tackle the trainer bottlenecks and facilitate scalable upskilling. Third, embed strong monitoring and evaluation systems through independent dashboards measuring disaggregated outcomes (certifications, exits from sandbox, IP generation, and civic projects), pre/post-awareness surveys and public reporting at the annual level to create accountability and adaptive course-correction that is missing from the current system. Lastly, strengthen participatory engagement of stakeholders, establishing regular policy-academy-civil society forums, parliamentary accountability mechanisms and pilots; learn from Sri Lanka's participatory approach and Bangladesh's approach to inclusive development; design to deployment, incorporating marginalised voices (women, rural communities) (Rao, 2025; Accountability Lab Pakistan, 2025). They would allow the National AI Policy 2025 to become far more actionable, rights-affirming and culturally relevant as well, helping Pakistan benefit from its demographic dividend and reduce elite capture and digital divides in the

process. By adopting such an approach to policy development, drawing inspiration from India's funding levels, China's rapid implementation, Sri Lanka's commitment to rights, and Bangladesh's inclusive model, while sidestepping their prior compromises, Pakistan could achieve the significant advancement in genuine socioeconomic progress that India requires. Without it, the policy may very well result in poorer standards for adoption. Fragmentation, uneven inequities and losing clout to neighbours with more responsibly governed AI initiatives could become Pakistan's reality.

Recommendations

- Accelerate the enactment of comprehensive Personal Data Protection legislation as the statutory foundation for all ethical AI provisions in the policy.
- Publish a clear rulebook delineating the exact authority, reporting lines, and enforcement powers of the proposed AI Directorate to eliminate institutional ambiguity.
- Establish independent, publicly accessible monitoring dashboards that track disaggregated progress against every measurable target (e.g., certifications issued, sandbox exits, civic projects completed) with annual reporting.
- Create a dedicated national Train-the-Trainer corps anchored at the seven Centres of Excellence to overcome current shortages of qualified AI educators and ensure scalable upskilling.
- Prioritize phased, demand-driven pilot projects in high-impact sectors (agriculture, health, education) before nationwide rollout, incorporating real-time feedback from end-users and marginalized communities.
- Mandate green-AI benchmarks and environmental impact assessments for all compute infrastructure investments to align AI expansion with Pakistan's climate vulnerability and water scarcity.
- Ring-fence a minimum annual budget allocation (at least 0.5% of GDP) for the National AI Fund and Centres of Excellence, protected from ad-hoc cuts.
- Form permanent multi-stakeholder platforms (policy-academia-civil society-private sector) with formal

parliamentary oversight to ensure inclusive design, implementation, and course-correction.

- Integrate mandatory algorithmic impact assessments and bias audits into regulatory sandbox exit criteria and high-risk AI deployments.
- Launch a national AI governance observatory that conducts independent biennial reviews and publishes comparative benchmarking against regional peers to maintain long-term accountability and adaptive learning.

Conclusion

National AI Policy 2025 is indeed an important policy in an age of AI when AI has not only become an integral part of the lives of people but has also started revolutionizing the economic structure of the globe and even its governance as well as its social structures. With a youth population making up almost two-thirds of the population, it is evident through the 6-pillar innovation ecosystem that this policy has taken a strategic step and has made a laudable effort to be inclusive, to create an ethical government, and to give equitable access to everyone. It is evident that with the audacious goals, including 1 million AI professionals in 2030 and distributed centres of excellence, there will be a marked transition from mere digital experimentations to a holistic AI ecosystem. However, with ambition being the only factor will not secure change, and the real world of operations needs to be brought into harmony with the original vision of the policy. If not addressed, measurable outcomes are limited to reporting once a year and are vulnerable to elite capture, increased digital gaps, and loss of trust with the public when only basic electricity, high-speed rural connectivity, basic data-digitization, fiscal capacity and institutional coordination are poorly addressed.

The way forward is to undertake phased and disciplined implementation that emphasizes the enhancements at the core level, legal anchors that are enforceable, monitoring that is transparent, and the involvement of multiple stakeholders in a phased way rather than across the nation at once. Data-protection legislation could be accelerated, institutional roles could be clarified, protected budgets could be made ring-fenced, green benchmarks could be established and independent oversight could be institutionalised, making for scalable, rights-respecting systems

that serve the public interest. With timely action and policy will, Pakistan stands a real chance to become a responsible regional power in the governance of AI and realize its potential to become an inclusive player for socio-economic development, delivery of public services and building democratic legitimacy in the digital era through its young population. But if they fail to take swift action, the nation will continue to fall behind other nations that have already started to turn policy into action and will fall back into the same old pattern of a sound policy thwarted by sluggish implementation. All Pakistan needs to do is choose between making AI a strategic national capability that needs to be developed with a sense of continuity and investment and making it another lost opportunity in Pakistan's long journey toward inclusive technological development.

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