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Artificial Intelligence Institute

ASEAN AI Governance Roundtable #3: Jakarta, Indonesia

AI Talent & The Future of Work: How can a robust AI talent pipeline be built, and how do stakeholders identify & direct R&D efforts?

*This is the **third** of a series of regional [roundtables](#) convened by AI Singapore for representatives from industry, government, and academia to discuss responsible AI. Such discussions are typically too narrow and too broad. Too narrow in that a few voices dominate the discussion – notably those in the United States and Europe, with China sometimes included. Too broad in that discussion is often limited to generalities and principles. This project aims to address both aspects of this problem, involving a wider set of stakeholders — in particular those from Southeast Asia — in more focused discussions of specific challenges in the application of Responsible AI to particular questions.*

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Executive Summary

On 16 May 2025, the Jakarta Regional Roundtable on AI Governance convened representatives from government, academia, civil society, and industry to understand the impact of AI on talent and the future of work. The discussion focused on two questions: **How can a robust AI talent pipeline be built, and how do stakeholders identify and direct AI R&D efforts?** To address these questions, participants examined the 'what', 'how', and 'why': what are these gaps, how these gaps can be addressed, and why these approaches matter:

1. What are the areas in which AI talent is lacking, how should these areas be addressed, and why take such an approach to address these gaps?

Indonesia's rapidly growing digital economy faces a significant shortfall in AI and digital talent, with a projected gap of 2.5 million professionals by 2030. Addressing this requires more than just scaling up training and first calls for a clear understanding of the gaps across three key groups: everyday AI practitioners (such as students, teachers, and business owners), AI developers (engineers and technologists), and AI guardians (regulators and policymakers). While various initiatives have begun to embed AI skills into formal education and certification pathways, including efforts to align with international frameworks, the challenge lies in ensuring these interventions are strategic, sustained, and inclusive. Stakeholders emphasised the importance of foundational skills such as critical thinking, ethics, and systems literacy alongside technical training, to build a generation that is AI-aware but not AI-dependent. As AI becomes more embedded in public and private sectors, equitable access to AI education, real-world learning opportunities, and regionally relevant infrastructure will be essential to cultivating a robust and inclusive AI talent pipeline.

2. What are these AI R&D gaps, how can stakeholders be involved and why should stakeholders be invested in these initiatives?

Indonesia's AI R&D efforts must move beyond isolated innovation and be directed toward solving high-impact, locally relevant challenges. Participants emphasised that AI R&D should focus not only on building core capabilities but also on practical, context-sensitive applications in key sectors like healthcare, education, MSMEs, and sustainability. Rather than replicating global AI strategies, Indonesia must localise tools and retrain models using its own data, infrastructure, and languages. Stakeholders underscored the importance of targeted investment, public-private collaboration, and grassroots experimentation to ensure AI development serves local needs. To sustain momentum, a more coherent incentive structure is needed: one that encourages knowledge transfer, rewards responsible risk-taking, and balances regulation with innovation to foster long-term commitment across all sectors of the ecosystem.

1 Introduction

Indonesia stands at a pivotal moment in shaping the future of AI and its impact on work. The National AI Strategy (Stranas KA) 2020–2045 and cross-sectoral initiatives like KORIKA reflect the government’s growing commitment to fostering AI innovation. As one of the world’s most populous and demographically young nations, Indonesia presents both a significant opportunity and a complex challenge in the global AI landscape. With a population exceeding 270 million and a median age of 30, Indonesia offers a vast and dynamic workforce potential. Sectoral deployment of AI in agriculture, healthcare, manufacturing, and disaster management holds particular promise. These high-impact domains are well-positioned to benefit from AI-driven solutions, whether through improving agricultural productivity, expanding access to healthcare, optimizing manufacturing systems, or bolstering disaster resilience through predictive analytics.

In terms of regulatory and policy frameworks for AI governance, apart from Stranas KA, the issuance of the Ministerial Circular Letter No. 9 of 2023 on AI ethics¹ that adopts a 3P approach (policy, platform, people) marks a foundational milestone for ethical AI development. The Circular aims to provide business actors with reference and guidance for implementing ethical values and principles through internal company guidelines and processes, and emphasises the benefits of AI for increasing productivity and optimising business processes. Beyond such guidance, there are also regulations targeting specific harms such as the Personal Data Protection (PDP) Law. Finally, Indonesia is witnessing growing infrastructure investments from major players like Nvidia, Tencent, Alibaba, and Microsoft, alongside the establishment of Southeast Asia’s second-largest AI-ready data center.²

While these developments signal strong upward momentum, Indonesia’s talent and R&D ecosystem still holds much potential to be tapped on. The broader ecosystem remains in an early stage of development. There is limited integration among startups, academia, and large industries, which hampers the emergence of a unified, scalable approach to AI adoption and governance. Gaps in AI-specific skills, critical infrastructure (such as GPUs and high-performance cloud environments), and access, particularly outside major urban centers, continue to pose barriers to inclusive progress.

Addressing these disparities will require focused efforts to expand AI education, training, and infrastructure in rural and underserved regions. In parallel, developing standardised AI roles and certifications can help formalize the profession and align Indonesia’s talent development efforts with international benchmarks. Bridging this divide will be essential to

¹ Azizah Saffa, “Indonesia Ensuring Ethical AI Development,” *OpenGov*, January 22, 2024, <https://opengovasia.com/2024/01/22/indonesia-ensuring-ethical-ai-development/>

² “Indonesia Becomes ASEAN’s Second-Largest AI Data Center Hub,” *INTIMEDIA*, accessed June 3, 2025, <https://intimedia.id/read/indonesia-becomes-aseans-secondlargest-ai-data-center-hub>

ensure broad-based participation in AI development and to avoid deepening existing inequalities. Moreover, realizing these gains depends not only on technology but on governance frameworks that ensure responsible deployment and sustainable incentive structures.

As such, the AI Governance pillar of AI Singapore, in conjunction with KORIKA, convened a roundtable with industry, government, academia and civil society to explore these interlinked challenges and opportunities, focusing on how Indonesia can strategically cultivate AI talent and shape the future of work in a way that is inclusive, ethical, and globally competitive. The discussion focused on two questions: ***How can a robust AI talent pipeline be built, and how do stakeholders identify and direct AI R&D efforts?***

2 How can a robust AI talent pipeline be built?

Indonesia's digital economy is expanding rapidly, but demand for AI and digital talent continues to outpace supply. According to some estimates, the country will require approximately 9 million digital professionals by 2030, yet current trends indicate a shortfall of around 2.5 million.³ Bridging this gap will require sustained, large-scale efforts to train and upskill roughly 1.3 million digital talents each year. However, before these numbers can be met, the gaps in AI talent and skills first need to be identified to ensure interventions are meaningful and measurable.

2.1 What are the areas in which AI talent is lacking?

This talent gap spans three interconnected skill groups: everyday AI practitioners, AI developers, and AI guardians, each with distinct needs and challenges.

The first layer involves entry-level AI practitioners who engage with AI tools in non-specialist roles as part of their learning, teaching, or work environments. These practitioners could comprise students, educators, and business owners. While several ministerial initiatives aim to align academic curricula with industry demands, these efforts remain limited in scale and unevenly implemented. From primary education through to higher education, there is growing concern about how AI is introduced, not just as a technical tool, but as a transformative force in learning. A key issue is ensuring that AI augments rather than replaces human creativity and critical thinking. This calls for an emphasis on ethical, inclusive, and human-centered AI literacy from an early age.

The second layer comprises AI developers: the engineers, data scientists, and technologists building AI systems across sectors, including emerging areas like digital taxation and fintech.

³ "RI Govt pursues collaboration to narrow digital talent gap," ANTARA, last modified February 17, 2025, <https://en.antaranews.com/news/345201/ri-govt-pursues-collaboration-to-narrow-digital-talent-gap>

While momentum is growing largely thanks to public-private partnerships, the ecosystem could benefit from more consistent coordination, longer-term investments, and scalable pathways for developers to move from training to impact. The skill sets required are constantly in flux, and increasingly complex, especially with the introduction of generative AI.

The third critical group are the “AI guardians”: policymakers and regulators responsible for ensuring that AI is developed and deployed responsibly, inclusively, and in alignment with public interest. Across various government institutions, there remains a significant challenge in keeping pace with the speed of AI development. Moreover, many actors in this layer are still learning to use AI ethically and effectively within their own decision-making processes. Strengthening this layer is essential to building governance frameworks and policies that can evolve with technological change.

Several practical efforts are underway to map these talent gaps more systematically. For example, Ministry of Communication and Digital Affairs (KOMDIGI) has begun aligning individuals’ skills with Indonesia’s National Occupation Map,⁴ categorizing them across six key functional areas, including IT governance, product development, AI, and data science. Each individual is evaluated using the Indonesian National Qualifications Framework (KKNI) level system, helping to identify proficiency gaps at scale. In parallel, Indonesia’s National Competency Standards (SKKNI)⁵ have defined core competencies for data science roles, initially focusing on practical problem-solving such as starting with datasets, building models, and applying them in real-world settings. This framework outlines 21 distinct competencies, but as generative AI technologies are introduced and evolve along with the importance of AI ethics, so too must the standards. Thus, rather than creating entirely new standards, stakeholders are working to add new competency units focused on ethical use, trustworthiness, and responsible deployment. This may include incorporating units into formal certification pathways such as prompt engineering, that are increasingly critical in interfacing with LLMs.

To ensure alignment with global benchmarks and regional workforce needs, Indonesia has also looked outward. The APTIKNAS association (Indonesia’s oldest ICT professional body) has taken a lead role in evaluating and harmonising Indonesia’s digital skills frameworks with international counterparts. Notably, Singapore’s Skills Framework (SFw) has been a key reference point,⁶ reflecting the deepening bilateral collaboration between the two countries

⁴ “Indonesia launches Occupational Field Map of ICT for bridging gap between industry and education,” OpenGov, last modified October 27, 2017, <https://opengovasia.com/2017/10/27/indonesia-launches-occupational-field-map-of-ict-for-bridging-gap-between-industry-and-education/>

⁵ “Daftar Dokumen Standar Kompetensi Kerja Nasional Indonesia (SKKNI),” Kementerian Perindustrian, accessed June 3, 2025, <https://sidia.kemenperin.go.id/competency/skkni/index/9/0>

⁶ “Skills Frameworks to support the Industry Transformation Maps,” SkillsFuture, accessed June 3, 2025, <https://www.skillsfuture.gov.sg/skills-framework>

in digital innovation and workforce development. At Politeknik Statistika STIS, the institution operates a Professional Certification Agency, accredited by Indonesia's National Professional Certification Body (BNSP).⁷ All students must be certified in one of two nationally recognized AI competencies: data scientist or associate data scientist. This ensures that graduates are not only academically qualified but professionally validated, aligning their capabilities with national workforce standards.

2.2 How should these gaps be addressed?

How should these gaps be addressed once these skills gaps are identified across the different layers of users, developers, and policymakers? Given the breadth of Indonesia's public, private, formal and non-formal education systems, any long-term solution must involve the systematic integration of AI skills across all types of educational infrastructure. However, because AI competencies require time, iteration, and mentorship to develop, this integration must be both strategic and sustained.

At the foundational skills level, basic AI literacy is beginning to take root in the national curriculum. Institutions like Universitas Indonesia (UI) and Institut Teknologi Bandung (ITB) have initiated efforts to incorporate coding and AI education into various stages of learning. At the primary level, coding is being introduced to children to build computational thinking skills early. In higher education, AI is increasingly being embedded across undergraduate programs, even beyond computer science faculties, ensuring that students in diverse disciplines engage with AI tools and concepts. At the postgraduate level, institutions like Politeknik Statistika STIS have begun integrating AI into statistics and public policy training, targeting civil servants who play a role in shaping data-driven governance.⁸

Beyond technical skills, universities are also beginning to address the ethical dimensions of AI. For instance, academia has stressed the importance of equipping students with a strong grounding in AI ethics and responsible use, recognizing that technical proficiency must be complemented by critical thinking and ethical decision-making especially as AI systems increasingly influence public outcomes. Several government-backed initiatives are also contributing to this upskilling ecosystem. One notable example is KOMDIGI's Digital Talent Scholarship,⁹ launched in 2019. The program is open to all members of the public and operates independently from formal academic institutions. Fully funded by the government, it offers free access to AI and digital training, helping to democratize opportunities for AI literacy and professional growth beyond traditional university settings.

⁷ Badan Pengkajian dan Penerapan Teknologi, "Indonesia National Strategy on Artificial Intelligence (Stranas KA)," August 10, 2020, 34.

⁸ Hendrik Yaputra, "Indonesia's VP Gibran Says AI Will be Taught in Schools Starting Next Academic Year," *TEMPO English*, May 3, 2025, <https://en.tempo.co/read/2003216/indonesias-vp-gibran-says-ai-will-be-taught-in-schools-starting-next-academic-year>

⁹ "Digital Talent Scholarship", KOMDIGI, accessed June 3, 2025, <https://digitalent.komdigi.go.id/>

2.3 Why take such an approach to address these gaps?

Fundamentally, the integration of AI skills into education and workforce development must be underpinned by clear pedagogical objectives and coherent policy rationales, especially when the speed of development makes it difficult to distinguish between passing trends and enduring competencies. Therefore, a philosophy of returning to the fundamentals should be adopted. As articulated by educators, the aim of such initiatives should be to develop a generation that is AI-aware but not AI-dependent. This means cultivating individuals with strong literacy, numeracy, and systems thinking skills as core cognitive abilities that endure even as tools and platforms change. This dovetails with the government agenda to prepare AI talent through targeted curriculum and training, and integrating AI education into the national learning ecosystem, including digital platforms used by teachers and students.

The importance of foundational skills is a consistent theme across stakeholders. Civil society stresses the need to prioritize critical thinking and problem-solving over mere technical proficiency. AI should be seen as a tool to enhance human judgment and not replace it. There is growing concern that overreliance on AI could erode essential cognitive abilities, and this risk is especially acute when AI is introduced without sufficient grounding in ethics, context, or problem-solving frameworks. Meanwhile, programs such as industry internships provide an essential avenue for real-world experimentation. Learning by doing especially through failure and iteration is a necessary part of AI literacy. These hands-on opportunities enable students and young professionals to apply their knowledge to real problems, sharpen their skills, and build confidence. Lastly, given the diversity of Indonesia's demographic, AI tools and infrastructure should be expanded across all regions, so that young people from diverse geographies and socioeconomic backgrounds can experiment, explore, and innovate based on the challenges and opportunities in their local communities.

3 Identifying & directing R&D efforts

The next challenge lies in identifying and directing AI R&D in a way that aligns with Indonesia's national priorities. AI R&D cannot be seen as an isolated endeavour focused only on advancing technical capabilities. Rather, it should be guided by a strategic vision of how AI can augment and transform key domains across society: an approach sometimes referred to as AI+ (AI applied in other sectors) as opposed to purely core AI research. In this light, it becomes critical to prioritise areas where AI can create tangible, near-term impact ("everyday AI"), while also laying the groundwork for more transformative, "game-changing" applications over time.

3.1 What are these R&D gaps?

However, one of the challenges facing Indonesia's R&D ecosystem today is that existing efforts are scattered across sectors and institutions, with limited coordination or shared

direction. This makes it difficult to build momentum or scale promising innovations beyond isolated and diffused pilot projects and initiatives. A starting point could be to use national frameworks such as the Stranas KA to select these priority sectors. It identifies five high-impact priority sectors for AI application: healthcare, bureaucratic reform, education and research, food security, and smart cities and mobility. These sectors were selected due to their significance in other national policies such as the National Medium-Term Development Plan, Making Indonesia 4.0, as well as the availability of supporting infrastructure for AI (i.e. datasets), their impact to the economy and public, and urgency (such as healthcare due to COVID-19).¹⁰

Indeed, a significant and quantifiable method to guide AI R&D priorities is to select industries by their economic impact, or their potential contribution to Indonesia's GDP. From this perspective, micro, small and medium enterprises (MSMEs) particularly those in labour-intensive industries ("*industri padat karya*") like manufacturing emerge as a strategic focus. Policy roundtables conducted by civil society in various regions last year revealed that manufacturing MSMEs play a significant role in the national economy, contributing to 61% of Indonesia's GDP and 97% of the overall workforce.¹¹ Enabling these enterprises to adopt AI could lead to measurable gains in productivity and competitiveness, making them an attractive target for R&D investment and support.

While using economic impact as a barometer of R&D potential is important, it is not sufficient. The adoption of AI must be guided not only by potential gains in efficiency or productivity, but also by a commitment to human-centered outcomes. This means that AI systems should be designed and governed for the interest of people, in alignment with societal values and not be left to free market dynamics. This requires embedding ethical safeguards and social protections, particularly in areas where algorithmic decisions can directly affect livelihoods and well-being.

This imperative is particularly urgent in the healthcare sector. Although regulatory sandboxes by the Health Ministry have been introduced to pilot new technologies such as telemedicine and explore the risks of AI in a controlled setting,¹² participants emphasised the need for stronger frameworks to guide responsible use. Concerns range from data privacy and the confidentiality of medical records, to the accuracy of AI tools used in clinical decision-making, where errors could have serious consequences for patient care. Other sectors are grappling with equally complex AI ethics issues. In the creative industry, generative AI has raised concerns about intellectual property and legal accountability for

¹⁰ BPPT, "Stranas KA," 87 - 88.

¹¹ "UMKM Indonesia," KADIN Indonesia, accessed June 3, 2025, <https://kadin.id/en/data-dan-statistik/umkm-indonesia/>

¹² "Health Ministry launches regulatory sandbox to secure telemedicine," ANTARA, accessed June 3, 2025, <https://en.antaranews.com/news/278697/health-ministry-launches-regulatory-sandbox-to-secure-telemedicine>

potentially harmful content, such as misinformation or defamation. The sustainability sector is calling for clearer regulations and better data to support AI-driven initiatives like climate resilience and environmental monitoring. In e-commerce, efforts are centered on improving consumer protection, advancing digital literacy, and building stronger public-private collaborations. Meanwhile, the banking and finance industry is focused on safeguarding user data through enhanced privacy and cybersecurity measures in an increasingly digital environment.

The education sector was cited as a suitable entry point for embedding responsible AI from the ground up. The Ministry of Education has begun integrating AI into national education platforms, starting with Merdeka Mengajar (PMM), an app that “functions as a learning platform for teachers to access learning features, gain inspiration and improve their teaching abilities”, and has been used by 3.1 million teachers and 350,000 schools in Indonesia.¹³ This platform has since evolved into the GTK platform.¹⁴ These AI tools are designed to assist, not replace, teachers, offering localised and contextualised support for lesson planning and assessment creation. Most recently, the Directorate General of Higher Education, Research, and Technology has published guidelines for the use of generative AI in education,¹⁵ addressing ethical issues such as overreliance on AI and plagiarism while also acknowledging the benefits that it can bring (i.e. personalisation of learning styles). Finally, there is also growing momentum in research conducted by Universitas Indonesia to embed Responsible AI principles directly into the software engineering lifecycle (or “responsible by design”).

3.2 How can stakeholders be involved in R&D?

How can stakeholders then contribute to the reduction of these R&D gaps? While it may be tempting to emulate leading global efforts, such as those in the United States or Europe where the focus is on building foundational models from scratch, Indonesia’s distinct context calls for a more pragmatic and localised approach. Off-the-shelf AI solutions developed abroad often fail to translate effectively due to differences in infrastructure, linguistic diversity, and data availability. Simply replicating foreign R&D strategies without adaptation risks misalignment with national priorities and practical constraints.¹⁶

¹³ Mochamad Azhar, “Indonesian education platform makes teachers ‘agents of transformation,’” *GovInsider*, November 23, 2023, <https://govinsider.asia/intl-en/article/indonesian-education-platform-makes-teachers-agents-of-transformation>

¹⁴ “Ruang Guru dan Tenaga Kependidikan (GTK),” Ministry of Primary and Secondary Education, accessed June 3, 2025, <https://guru.kemdikbud.go.id/>

¹⁵ Ministry of Higher Education, Science, and Technology, “Panduan Penggunaan Generative Artificial Intelligence pada Pembelajaran di Perguruan Tinggi,” October 11, 2024, <https://kemdiktisaintek.go.id/epustaka/122191/>

¹⁶ See also: “Malaysia’s Advancing AI Governance: Driving Contextual AI Innovation Amid Trade-offs and Opportunities,” AI Singapore, accessed June 16, 2025, <https://aisingapore.org/wp-content/uploads/2025/03/Malysias-Advancing-AI-Governance-Driving-Contextual-AI-Innovation-Amid-Trade-offs-and-Opportunities.pdf>

For most local stakeholders, particularly startups and MSMEs, the greatest opportunity lies not in developing core AI technologies but in applying existing tools to solve real-world problems. Innovations at the application layer are easier pickings because they require less compute and can generate significant economic and social value when coupled with sustainable business models. Even multinational corporations (MNCs), despite having access to state-of-the-art AI tools, frequently discover that effective deployment in Indonesia requires retraining models with high-quality, localised datasets. Without this contextual adaptation, AI systems struggle to produce meaningful or reliable outcomes.

This view is reinforced by national data agencies, which highlight the logistical challenges of gathering data across Indonesia's diverse geography, from remote rural villages to dense urban centers. To address these issues, agencies are complementing traditional surveys with non-traditional methods,¹⁷ including big data analytics, AI, and machine learning. While grounded in the local context, these efforts also aim to remain globally aligned by adhering to international standards, such as those set by the United Nations Statistics Division (UNSD), to ensure interoperability and data credibility.

This emphasis on localisation is echoed across sectors. Civil society organizations have been piloting grassroots data science programs tailored to the technological readiness of different regions. Several MNCs are also collaborating with local startups to enable knowledge transfer and co-develop context-appropriate solutions. One standout example is an Indonesian startup that leveraged on technology from a MNC, but then used their own local data to build an open-source LLM designed specifically for Bahasa Indonesia and outperforms many global models by virtue of its cultural and linguistic relevance.

3.3 Why should stakeholders be invested in these initiatives?

To sustain and scale these AI ecosystem-building efforts, clear and coherent incentive structures are essential. These must encourage innovation while also providing guardrails that ensure responsible development. As several participants noted, the problem is often one of implementation. Policies may exist on paper, but without long-term commitment and institutional support, they rarely translate into lasting change.

The private sector has a critical role to play, particularly in enabling knowledge and technology transfer between MNCs and local MSMEs. MSMEs may have the incentive and opportunities to solve tangible local problems but may not have the resources to do so, while MNCs have such resources but yet lack local insight into the problem. Therefore, MNC collaborations with Indonesian startups offer one such modality to bridge these gaps, offering practical infrastructure support while relying on local partners to develop

¹⁷ For example, "Standards for Statistical Data 2024," BPS-Statistics Indonesia, accessed June 3, 2025, <https://www.bps.go.id/en/publication/2025/03/18/57916e7339daba17bb8585aa/standards-for-statistical-data-2024.html>

context-specific applications. Some MNCs have partnered with the government to create startup ecosystems that are both policy-aligned and innovation-driven, including talent development efforts through privately run training institutions¹⁸ by these MNCs. Industry also noted that more than ever, intentional government support is vital. Unlike the 2019–2020 startup boom where capital flowed freely, today’s environment demands carefully structured support, whether in the form of subsidies, tax incentives, or knowledge-sharing platforms to keep the ecosystem thriving.

Furthermore, Industry also has the potential to improve incentives for training efforts. A regional MNC shared that their approach to interns is not to view them as expendable labor but as investments. The company pays them fairly and offers real opportunities for growth, reflecting a broader belief in the value of long-term talent development, especially for fresh graduates and young professionals who often face financial pressures in early-stage roles.

Yet for this to work, success must be redefined. Civil society representatives shared that innovation efforts in universities are often measured by their ability to produce tangible end products. This discourages experimentation, as public grants may require specific deliverables to be met. However, invention and trial-and-error are critical components of genuine R&D. Without the freedom to fail, few prototypes ever evolve into scalable innovations that directly address industry needs. Along this vein, incentives for experimentation can be further strengthened in the private sector. While Indonesia offers tax relief for companies engaged in R&D across 18 priority sectors,¹⁹ civil society commented that some businesses may be reluctant to apply. The concern is that these incentives could act as a “*Jebakan Batman*”: a trap that opens the door to intense scrutiny or audits from other branches of government. This misalignment could discourage R&D efforts and innovation from being realised in promising industry use-cases.

At the policy level, more nuanced regulatory frameworks are needed to foster responsible innovation without stifling it. Striking this balance is particularly important in a country with stark digital divides. Overregulation could risk stifling innovation in underserved regions, while underregulation could exacerbate inequalities and risks. Industry highlighted the importance of regulatory incentives, such as rules that guide but also actively encourage private-sector participation. Academia further elaborated on the need to balance “hard law” (like the Personal Data Protection Law and the Electronic Information and Transactions Law) with “soft law”: principles, guidelines, and ethical frameworks that are flexible enough to evolve with technology. A positive example of hard regulation changing incentives comes

¹⁸ For example, “Metrodata Academy,” Metrodata, accessed June 3, 2025, <https://metrodataacademy.id/>

¹⁹ “Tax Incentives for Businesses in Indonesia,” ASEAN Briefing, accessed June 3, 2025, <https://www.aseanbriefing.com/doing-business-guide/indonesia/taxation-and-accounting/tax-incentives-for-businesses>

from Politeknik Statistika STIS, whose work is mandated by Indonesia's 1997 Statistics Law,²⁰ now under revision. The proposed updates aim to bring big data, machine learning, and AI formally into the national legislative framework which is an important step in aligning public sector data efforts with contemporary technological realities.

4 Conclusions

One participant remarked that Indonesia's AI strategy views AI not merely as a tool, but as a teammate; a partner that supports and collaborates with humans in achieving shared goals. While tools can be swapped out or discarded, teammates are integrated into how work is organised and how value is created. This framing reflects a more enduring vision that sees AI as a long-term essential contributor to the evolving nature of AI talent and the future of work, rather than merely a temporary add-on.

As such, when taken together, these efforts represent a multi-layered approach to building Indonesia's AI talent base from curriculum reform and ethical literacy to certification and public training programs. Such rationales ensure that AI education is contextual, grounded, and inclusive by building not only the technical know-how but also the human judgment and adaptability needed to navigate the multi-faceted opportunities and risks of AI development. Similarly, Indonesia's AI R&D strategy should be one rooted in high-impact pragmatism. While global best practices and standards offer valuable reference points, Indonesia's most urgent needs lie in developing customised, locally adapted solutions.

On the underlying issue of incentives, Indonesia has laid a strong foundation for developing its AI ecosystem, with numerous policies and frameworks already in place. The next step is to strengthen and align incentive structures that can translate these plans into sustained action through long-term commitment, regulatory clarity, and support for experimentation. As Indonesia accelerates its investment in AI, such clarity of purpose and alignment between values and competencies will be key to ensuring that Indonesia's AI development is not only technologically sound and in tandem with global trends, but also serves as a force for empowerment, rather than dependence while being inclusive, effective, and sustainable.

²⁰ "Law of the Republic of Indonesia, No. 16 of 1997 on Statistics," ASEANstats, accessed June 3, 2025, https://www.aseanstats.org/wp-content/uploads/2016/11/ID-law16_97.pdf

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