PANAMA

Assessing the AI ecosystem

Philippe Aniorté

Director of the National Institute of Research in ICT, INDICATIC AIP

Key takeaways
- Panama faces multifaceted challenges to the successful adoption of AI across a range of industries and sectors.
- A draft Bill to regulate the use, development and application of AI in Panama, and a new national strategic plan for science and technology for 2029–2025 are aiming to address some of these challenges.
- A national project, INDICATIC, is focusing on data processing, with AI as a critical component, and encompasses research, innovation and training.

According to the Latin American Artificial Intelligence (AI) Index, which assesses a country's readiness for and performance in AI in five areas (see box), Panama ranked ninth among the 12 countries studied in 2023, with an average score of 24.66 (out of 100), below the regional average of 42.6 (Centro Nacional de Inteligencia Artificial, 2023). This ranking highlights several gaps: Panama lacks AI-skilled talent, higher education opportunities in AI, a national strategic plan to promote advanced technology, and supportive AI laws and regulations (Hernandez, 2023). In talent development specifically, Panama ranks among the lowest in the region, with a score of 16.12, just above Paraguay and Bolivia. The index further notes the absence of open AI courses, scarce professional training, a lack of advanced postgraduate AI programmes and a shortage of workers with sufficient knowledge to leverage AI for innovation in their roles.

> **Dimensions assessed by the Latin American Artificial Intelligence Index**
> - Enabling factors for developing a robust AI system
> - Research, development and adoption of the technology
> - Governance and legal frameworks
> - Societal perception in social networks and digital media
> - Academic trends and expert views on social impact

These issues must be overcome to ensure the successful adoption of AI across multiple sectors in Panama.

Legislation and strategy

In July 2023, a draft Bill (Bill Draft No. 014) was presented to the National Assembly of Panama. The Bill aims to regulate the use, development and application of AI in the country (National Assembly of Panama, 2023). Presented through Citizen Participation, the Bill applies to any person within Panama who develops, uses or commercializes AI systems, and prohibits the use of AI for illicit purposes, including the creation of digital forgeries, such as deepfakes, videofakes and audiofakes. Responsibility for such misuse falls on the person employing AI, even in cases where outcomes are unintentional or unforeseen. Additionally, individuals or companies using AI must inform affected individuals about any automated decisions made and the impact on their personal data.

Although Panama does not yet have an official AI strategy, it will shortly introduce its Plan Estratégico Nacional de Ciencia y Tecnología (PENCYT) 2025–2029. PENCYT is a broad initiative for science and technology that aims to support and coordinate research efforts (CECOM, 2025). The PENCYT of 2025-2029 will focus on six key areas, one of which is 'Digitalization', within which AI will be addressed.

AI penetration and adoption

Manufacturing is currently the only sector in Panama that is significantly leveraging AI; however, there is a trend towards expanding AI use across other sectors, including agriculture, urban development, environmental management, education, finance and health. This expansion remains in its early stages, and no specific policies or initiatives are yet actively supporting AI adoption in these sectors. Nor are there measurable goals or benchmarks in place to track AI penetration or its sectoral impact over time.

Adoption indicators reveal notable differences in technology transfer between Panama's private and public sectors, with government indicators for AI promotion surpassing those of private companies – a trend that mirrors patterns observed in many other countries in Latin America. There is limited information on collaboration between local businesses and government agencies regarding the implementation of AI, and it is unclear if there are incentives for organizations that choose to adopt AI technologies.

Several factors are impacting the adoption of AI in Panama, primarily a lack of knowledge on how it can be applied within various domains and what benefits it could offer. Another significant barrier is reluctance to invest in this new technology due to uncertainties surrounding its adoption. Additionally, there is a workforce skills gap, with limited access to the expertise required for AI implementation.

Increasing demand for AI skills

According to McKinsey's workforce skills model, technological skills are increasingly valuable and are projected to have the greatest impact on working hours. This trend is observed globally, and affects all sectors, although the degree of technological advancement varies by country. In its report on the future of employment, the World Economic Forum predicts that specialists in AI, big data and digital transformation will be among the roles most in demand in the next few years (WEF, 2025).

New job opportunities requiring AI skills are anticipated to emerge in Panama, including in government, academia and private industry. While high demand for AI-related jobs is expected across all sectors, there is limited data on the specific sectors in Panama currently experiencing the highest demand, and no formal tracking of the skills required in these sectors. Sector-specific strategies to foster AI job growth are also lacking, even in areas where Panama may have unique strengths or high growth potential. Panama's strategic plan, PENCYT, emphasizes sectors such as agriculture, logistics, health, finance and tourism, but there are no targeted initiatives to directly support job creation in these areas, meaning that workforce readiness for AI may develop more organically or rely on broader digitalization efforts under PENCYT's objectives.

Coordination and collaboration in AI research

Panama currently lacks dedicated AI research centres, although some AI research groups exist within universities. Resources and funding to support these groups are limited, with no specific emphasis on either applied or theoretical AI research. Individual university initiatives occasionally involve collaboration with companies but there are no formal structures to coordinate these efforts.

Through PENCYT, the government intends to coordinate AI research groups within universities, particularly by facilitating collaboration on large-scale projects; however, specific projects have yet to be identified. Formal channels or structures to increase collaboration between academic AI research groups and the private sector are also lacking, which could hinder cross-sector innovation and the application of AI insights in diverse industries.

In terms of data infrastructure, Panama is collaborating with the European Union on the Copernicus Data Centre project to store imagery of the region from the Copernicus satellite system (CopernicusLAC Panama Centre). This data will support climate change research and analysis, and is currently accessible, representing a significant step in making resources available to Panamanian researchers and institutions. However, this project remains focused on climate change, with limited efforts directed towards expanding AI research to other sectors. Panama currently has no detailed plan to expand AI research across additional sectors where AI data and infrastructure might play a critical role.

Addressing the skills gap

While the skills gap in AI is acknowledged, Panama does not currently benchmark its AI skills progress against similar countries in Latin America, nor does it have measurable goals or a defined timeline to reduce this gap. As such, Panama's approach to building AI skills is in the early stages, with limited structured strategies or metrics to evaluate progress.

Historically, academic training programmes have been slow to adapt to evolving industry requirements. Given the predicted increase in demand for specialists in big data and AI (WEF, 2025), training in these areas is becoming a significant necessity for the professional population in Panama but there appears to be a gap in AI training programmes specifically aligned with industry needs. Panama has no national initiatives dedicated to building

disruptive skills; only small, localized programmes are in place, and no substantial partnerships have yet emerged to address these needs. There is an urgent requirement to develop more professional training programmes alongside traditional Bachelor's and Master's degree tracks, to cater to broader audiences beyond university students.

Advancing Panama's technological capabilities

The INDICATIC project

The INDICATIC project, an initiative of the National Secretariat of Science, Technology and Innovation (SENACYT) under the national 'Panama Digital Hub' project, is funded by the Panamanian government but also seeks other resources via grants, projects with international banks and private contracts.

Focused on data processing, with AI as a critical component, INDICATIC's mission encompasses research, innovation and training, with a strategy for international collaboration. It specializes in developing AI-driven 'smart systems' and mathematical tools to process big data across sectors such as the environment, agriculture, urban development and education. This work centres on transforming raw data into valuable information and knowledge through a value-added chain, facilitating decision-making, predictions, process optimization and simulations. In addition to data processing, INDICATIC emphasizes data preprocessing (e.g. integration, cleaning and anonymization) and post-processing (e.g. visualization and augmented reality). Beyond research, INDICATIC prioritizes innovation, ensuring rapid socio-economic impact through technology transfer and valorization, and training, with opportunities for undergraduate and postgraduate interns and advanced technical training in AI, big data, blockchain and cybersecurity. While primarily national in scope, INDICATIC actively pursues international collaborations with partners in the United States, Europe (notably France) and Colombia, which are essential for its expansion and growth.

Achieving a high level of technological integration in Panama presents a significant challenge. To help address it, the INDICATIC initiative, started in June 2022, is playing a crucial role in advancing the nation's technological capabilities, particularly in AI (see box). One of INDICATIC's primary goals is to design and implement smart systems that incorporate AI within an innovation-driven framework, promoting technology transfer from research to productive sectors. To support this, INDICATIC also offers internships to students, allowing them to gain hands-on experience with AI through involvement in ongoing projects. INDICATIC is also supporting the development of the new legislation to govern AI in Panama and is playing a role in strategic planning.

The new PENCYT (2025-2029) which is being finalized, especially the vector "Digitalization", will include AI as a key issue for future plans and goals of Panama. This vector is articulated with sectors such as Logistics, Agro, Tourism, Health, Education, FinTech, very important for the country development. The issue of AI regulation is also tackled with a law project.

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