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AI in Practice: Highlights from UAE, Malaysia and Rwanda



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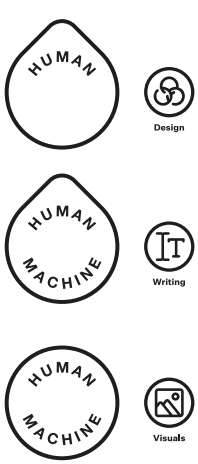
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Foreword

As an evolving technology, artificial intelligence (AI) has deeply permeated our lives and reorganised the way we live and work. The way it is applied throughout different parts of the world is directly connected to the ambitions and the traditions of different cultures. Yet, the narrative around AI development has often been dominated by a few global players, obscuring the vibrant, innovative, and purposeful work occurring across the Global South. In that vein, the Centres for the Fourth Industrial Revolution (C4IR) in the UAE, Malaysia, and Rwanda are proud to present *AI in Practice: Highlights from UAE, Malaysia and Rwanda*, a report that challenges the view of our nations as mere consumers of technology. Instead, it positions us alongside other developing economies as active co-shapers of the future global AI landscape.

Our nations span different continents, cultures, and economic structures. However, we are united by a shared conviction: AI is more than a technological tool – it serves as a transformative enabler of economic competitiveness, social well-being, and governance reform. The use cases detailed in this report demonstrate that successful AI deployment is inherently context-specific. While core technologies may be global, their effectiveness depends entirely on how well they are adapted to local institutional capacities and social needs.

In the **UAE**, this vision takes the form of a "living laboratory" for governance, where decisive leadership has institutionalised the role of Chief AI Officers across federal ministries to drive government excellence. In **Malaysia**, the focus is on a "human-centric" and inclusive integration, ensuring that AI – from sovereign foundation models to scalable commercial solutions – aligns with a multicultural society and bridges the digital divide for businesses and citizens alike. Meanwhile, **Rwanda** demonstrates a "policy-first" strategy, proving that nations can leapfrog traditional barriers by deploying AI to solve fundamental challenges in agriculture, healthcare, and education, even in resource-constrained environments.

Crucially, our collaboration underscores that ambition must be paired with responsibility. Across all three landscapes, we share an emphasis on ethical governance, ensuring that innovation thrives in tandem with public trust, transparency, and human oversight. We recognise that unchecked deployment could reinforce inequalities, which is why we have embedded safeguards such as ethical guidelines and regulatory sandboxes at the heart of our respective strategies.

Through the formalisation of our partnership under the **C4IR AI Fellowship Programme**, we are committing to a long-term exchange of best practices. We are therefore deeply humbled and honoured to invite you to peruse this pioneering work and to delve into each of the use cases, which showcase national success stories as a diverse set of blueprints for how nations can harness AI to build a future that is inclusive, competitive, and truly globally connected.



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Executive Summary

This report offers critical insights into how three distinct AI ecosystems – the United Arab Emirates (UAE), Malaysia, and Rwanda – are mastering the practical implementation and deployment of artificial intelligence (AI) in an ever-evolving digital landscape. It answers a vital question: that in order to harness AI effectively, nations must look beyond generic technological potential to specific institutional contexts. While the underlying foundations of AI may be universal, their successful application is inherently local, requiring governance frameworks that are as innovative as the technologies themselves. The use cases highlighted in this report illustrate how three nations that are geographically dispersed are operationalising AI to drive economic competitiveness, social well-being, and governance reforms.

The report identifies three distinct "pathways" to AI maturity, each shaped by national priorities. The **UAE** adopts a "living laboratory" approach, leveraging decisive leadership to institutionalise AI roles within government and drive rapid experimentation. **Malaysia** is pursuing a "human-centric" strategy, focusing on industrial resilience and inclusivity to ensure AI integration aligns with a multicultural society. Meanwhile, **Rwanda** demonstrates a "policy-first" model, proving that nations can leapfrog traditional barriers by focusing AI deployment on high-impact sectors like agriculture and health. The common denominator across all three national strategies is their commitment towards **responsible AI governance**, ensuring that innovation does not come at the expense of public trust, transparency, and human oversight.

To highlight this crucial balancing act in practice, the report analyses a total of 14 country-specific use cases – UAE (5), Malaysia (5) and Rwanda (4).

The use cases, contextualised to each country's needs and priorities, ultimately demonstrate that there are multiple pathways to successful digital transformation. Each nation's AI journey is contingent on its ability to adapt global technologies to suit local institutional capacities and fill societal gaps. In that regard, all three nations are combining technological ambition with regulatory foresight to build diverse digital blueprints that are inclusive, future-ready, and globally connected.

Note: This report is part of a collaboration between the Centres for the Fourth Industrial Revolution (C4IR) of UAE, Malaysia, and Rwanda under the C4IR AI Fellowship Programme, which represents a collective effort to address challenges facing AI implementation and policymaking, exchange knowledge and best practices, and develop frameworks and toolkits that are focused on the Global South experience.



AI-generated image for illustrative purposes.



United Arab Emirates

The UAE is redefining public-sector efficiency through the Agentic AI and Transformational Government Services, as well as the Federal Chief AI Officers (CAIO) Program, which embeds AI leadership across ministries. Operational successes include the Federal HR AI Agent, a virtual advisor handling over 22,000 interactions with 99% uptime, and the Smart Mission Project, which utilises AI to deliver unmanned consular services, reducing processing time from days to roughly two minutes. Additionally, the nation is securing data sovereignty through Arabic Large Language Models (LLMs) like Jais and Falcon.



Malaysia

Malaysia's strategy prioritises industrial competitiveness alongside social inclusivity. The report highlights ILMUchat, a sovereign multimodal LLM tailored to local languages, and SARA, an AI retail assistant empowering SMEs with enterprise-grade analytics. In healthcare, MeMoSA leverages mobile AI to democratise oral cancer screening for rural populations. Industrial and digital trust applications are equally robust and are featured through Tenaga Nasional Berhad's autonomous drone inventory system, which speeds up verification by 90 times, as well as WISE AI's regulatory-compliant digital identity verification platform.



Rwanda

To address fundamental development challenges, Rwanda launched the Rwanda AI Scaling Hub to transition projects from pilots to national scale. Key initiatives include an AI-enabled agricultural advisory tool accessible via feature phones for smallholder farmers, and the National Health Intelligence Center (NHIC). The NHIC integrates fragmented data systems to enable real-time, predictive health governance, shifting the sector from retrospective reporting to anticipatory action.

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UAE AI Governance and Use Cases



The UAE's AI Landscape



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The United Arab Emirates (UAE) has positioned itself as one of the most forward-looking nations in embracing artificial intelligence (AI) as a cornerstone of its future development.[1] Rather than treating AI as a narrow technological tool, the UAE has woven it into a national vision for economic diversification, social well-being, and government excellence. This ambition was formalised through the **UAE National AI Strategy 2031**, which sets out a clear roadmap to make the country a global leader in the responsible use of artificial intelligence. The strategy prioritises embedding AI into critical industries, enhancing the efficiency of government operations, and nurturing a new generation of talent capable of driving innovation.[2]

This long-term vision is backed by decisive leadership. In 2017, the UAE became the first country in the world to appoint a **Minister of State for Artificial Intelligence**, an unprecedented step that signalled its recognition of AI as a national priority.[3] The appointment was not symbolic; it reflected the country's determination to anchor AI in policymaking and to position itself as a testbed for new ideas, where experimentation and scaling could take place under a supportive governance framework.

To turn this vision into reality, the UAE has established a number of influential institutions and initiatives. The **Mohamed bin Zayed University of Artificial Intelligence (MBZUAI)**, the world's first graduate-level research university dedicated entirely to AI, stands as a global hub for talent development and knowledge creation.[4] In parallel, the **Dubai Future Foundation (DFF)** plays a critical role as an ecosystem builder, fostering public-private collaboration and hosting initiatives such as the Dubai Future Accelerators and Dubai Future Labs, which connect government entities with startups and researchers to co-create solutions.

The **Dubai Centre for AI (DCAI)** extends this ecosystem further by providing a dedicated platform for government experimentation, ensuring that AI adoption is both rapid and responsible.[5] Complementing these efforts is the **UAE Artificial Intelligence Office**, which oversees the implementation of the national AI strategy and ensures that ministries and local entities remain aligned with the broader vision.

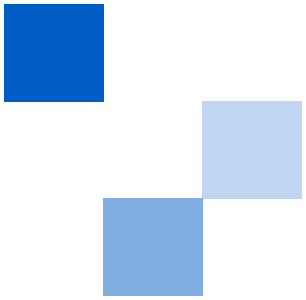
The practical application of AI in the UAE is wide-ranging and ambitious. In **healthcare**, AI is being used for early diagnostics, predictive analytics, and robotic surgeries, helping to enhance patient care while relieving pressure on medical systems. In **education**, the government is investing in AI-enabled platforms to deliver personalised learning pathways and modernise curricula. The **transport sector** has become an especially visible field of experimentation, with Dubai conducting large-scale trials of autonomous vehicles, aerial drones, and AI-enhanced logistics. In **energy and sustainability**, AI systems are being used to forecast renewable energy generation, manage smart grids, and optimise water and resource use – all of which support the UAE's commitment to climate action. Perhaps most notably, **government services** themselves have been reimagined with AI-driven chatbots, predictive service models, and advanced analytics, ensuring that the experience of citizens and residents remains at the centre of technological progress.

Crucial to the UAE's strategy is its orientation toward **international collaboration**. The country has forged partnerships with leading global technology companies such as Microsoft, Google, and IBM, while also engaging with international organisations including the **World Economic Forum (WEF)** to shape the global discourse on AI governance and ethics.[6] At the same time, the UAE actively fosters entrepreneurship and innovation through initiatives like the **National Program for Coders**, which seeks to attract top global talent, and through startup accelerators that provide a platform for AI ventures to scale. This blend of global partnerships and local innovation makes the UAE not only a consumer of technology but also a co-shaper of the future AI landscape.

The UAE has also been deliberate in addressing the **ethical and societal implications** of artificial intelligence. Recognising that unchecked deployment could create risks, the country has embedded values such as transparency, fairness, and accountability into its AI frameworks. Its leaders have emphasised that AI should be a force for inclusion and sustainability, not division or inequality. This approach reflects a balance between ambition and responsibility, a hallmark of the UAE's model for adopting emerging technologies.

> Taken together, the UAE's AI landscape represents a **blend of visionary leadership, institutional infrastructure, cross-sector adoption, and global engagement.**

The country has not only positioned itself as a regional leader but is also contributing to global best practices in AI deployment. By combining technological ambition with regulatory foresight and ethical responsibility, the UAE is building a living laboratory for AI applications, one that will influence both domestic transformation and international standards in the years to come.



Agentic AI and the Transformation of Government Services

The UAE Government's Agentic AI Project marks a major new phase in the UAE's AI National Strategy, shifting from service digitisation and automation toward autonomous, intelligence-driven government operations and services. Announced by H.H. Sheikh Mohammed bin Rashid Al Maktoum during a UAE Cabinet meeting on 23 April 2026, under the directives of President H.H. Sheikh Mohamed bin Zayed Al Nahyan, the framework aims to transform 50% of UAE Government sectors, services, and operations within two years through Agentic AI models capable of monitoring changes, analysing information, recommending actions, managing operations, and supporting autonomous execution and decision-making.[7] The Cabinet subsequently approved a federal implementation framework defining the roles and responsibilities of ministries and federal entities, including the formation of entity-level teams, implementation targets, assessment indicators, and a major capability-building programme to train 80,000 federal employees across leadership, technical, specialist, general workforce, and train-the-trainer categories.[8]

The programme was further advanced during the national Agentic AI Retreat held in Abu Dhabi on 20 May 2026, attended by H.H. Sheikh Mohammed bin Rashid Al Maktoum, H.H. Sheikh Mansour bin Zayed Al Nahyan, and H.H. Sheikh Saif bin Zayed Al Nahyan, alongside ministers, federal government leaders, and senior officials.[9] The retreat focused on executive plans for integrating Agentic AI across government work and included the launch of the UAE Government's first cohort of AI agents: a Procurement AI Agent to streamline sourcing and purchasing workflows; a Tax Auditing AI Agent to enhance data verification, compliance, and audit turnaround times; a Customer Happiness AI Agent to support faster and more effective service responses; and a Technical Support AI Agent to improve IT service management, business continuity, and digital service readiness.[10]

The institutional architecture behind the programme has continued to evolve since the retreat. On 14 June 2026, Sheikh Mohammed bin Rashid Al Maktoum approved the creation of the Artificial Intelligence and Data Authority, a federal body reporting directly to the Cabinet and chaired by H.E. Omar Sultan Al Olama, unifying three former entities: the Office of Artificial Intelligence, Digital Economy and Remote Work Applications, the Digital Government Sector at the Telecommunications and Digital Government Regulatory Authority, and the UAE Data Office.[11] The Authority now leads the national AI strategy, manages government data quality and sharing, and oversees the design of proactive digital services, positioning it as the standing body that will carry the agentic transformation forward after the initial retreat and agent launches.[12]



AI-generated image for illustrative purposes.



01

AI Governance

The UAE Federal Chief AI Officers (CAIO) Program

When the UAE Cabinet approved the creation of the position of **Chief Artificial Intelligence Officer** (CAIO) across federal ministries and entities, it signalled a decisive step towards embedding AI leadership at the heart of government. The decision, chaired by His Highness Sheikh Mohammed bin Rashid Al Maktoum, established CAIOs as senior officials responsible for guiding how their entities adopt, govern, and scale artificial intelligence in support of national priorities.[13]



Image 1: Mohammed bin Rashid meets Chief AI Officers in UAE Government (Credits: Protocol Department – Dubai)

The CAIO roles did not emerge in isolation. They build on the **Federal Artificial Intelligence Programme**, launched in 2019 by the Office of Artificial Intelligence, Digital Economy and Remote Work Applications in collaboration with the University of Birmingham in Dubai. This programme has already trained more than **450 participants from over 100 organisations**, with courses focused on AI strategy, ethics, governance, and sector-specific applications, and a dedicated track was later designed specifically for CAIOs. The CAIO Program, therefore, represents the next logical evolution: moving from general AI literacy in government to a structured, nationwide AI leadership framework.[14]

The CAIOs were selected following Cabinet approval on the basis of their deep understanding of rapidly evolving technologies and their ability to translate them into real improvements in government performance. They represent a cross-section of the UAE federal government, drawn from ministries and authorities responsible for areas such as health, education, economy, infrastructure, cybersecurity, and government services. As a group, they form a national network of senior officials tasked with turning the UAE's AI Strategy 2031 and broader Vision 2031 into concrete use cases, policies, and services.

To equip these leaders, the UAE launched an intensive **training and knowledge programme** specifically for CAIOs. A two-week federal training course, delivered under the Federal Artificial Intelligence Programme, covers the latest trends in AI, governance models, ethics, and regulatory changes, alongside sectoral applications spanning health, cybersecurity, energy, urban development, government services, and entrepreneurship. This formal learning is complemented by applied work inside each entity, where CAIOs are expected to identify priority use cases, oversee pilots, and help design the governance frameworks that ensure responsible and secure deployment.[15]

A defining feature of the CAIO Program is its emphasis on **global exposure and partnership**. In 2025, the UAE organised a landmark knowledge tour for its CAIOs, described as the region's first programme of its kind. The delegation visited **13 leading US technology companies**, including Google, Meta, OpenAI, Palantir, NVIDIA, IBM, Amazon, and Microsoft. Over the course of 10 days, the CAIOs engaged in more than 20 interactive technology sessions, saw early-stage products and AI platforms that have not yet reached the market, and discussed future roadmaps with senior executives and experts.



Image 2: UAE Government launches Chief AI Officers' Training Programme to enhance future tech leadership (Credits: Emirates News Agency WAM)

This tour was explicitly framed as a way to ensure that UAE CAIOs are not simply consumers of off-the-shelf products, but informed partners who can co-shape pilots and next-generation solutions.[16]

The programme's importance has been repeatedly underscored at the highest leadership level. During a dedicated meeting with the federal CAIOs, His Highness Sheikh Mohammed bin Rashid emphasised that AI is central to the UAE's ambition to be a global hub for innovation and future industries, and that these leaders carry a direct responsibility to translate advanced technologies into practical improvements in public services and sustainable development. Minister of State for Artificial Intelligence, Digital Economy and Remote Work Applications Omar Sultan Al Olama has likewise described the CAIO training initiative as a strategic move to "upskill and empower AI leaders" and to fast-track advanced technology integration across government.[17]

Although still in its early phases, the CAIO Program is already reshaping how the federal government approaches AI. CAIOs have become focal points for identifying and prioritising AI projects, coordinating with vendors, and aligning pilots with broader national strategies. Their work supports initiatives ranging from AI-enabled government services to sectoral projects in health, infrastructure, and the digital economy, while helping to ensure that new systems respect the UAE's principles of fairness, transparency, data protection, and long-term sustainability.

> The UAE Federal CAIO Program represents a governance innovation model in its own right.

By institutionalising the role of Chief AI Officer across ministries and coupling it with structured training, international exposure, and strong political backing, the UAE has created one of the world's most comprehensive national AI leadership frameworks in government. The programme not only strengthens the country's readiness for emerging technologies but also ensures that the adoption of AI in the public sector is strategic, coordinated, and guided by accountable human leadership, anchoring the UAE's ambition to build a government that is truly intelligence-driven and prepared for the future.



02

Federal HR AI Agent

In alignment with the UAE's overarching vision for a future-ready government workforce, the Federal Authority for Government Human Resources (FAHR) launched the **HR AI Agent**, one of the most advanced generative AI applications deployed across the UAE federal government ecosystem. Conceived not as a simple chatbot but as a **virtual HR and policy advisor**, the solution reflects the country's commitment to embedding AI into essential government functions to enhance employee experience, policy compliance, and operational excellence.[18]



Image 3: HR AI Agent (Credits: Federal Authority For Government Human Resources)

The HR AI Agent redefines how 50,000+ federal employees access and interact with HR services. Styled as a culturally relevant Emirati avatar and accessible 24/7 across mobile, web, and CRM platforms, the agent handles more than **100 HR and policy services**, ranging from legal inquiries to transactional self-services such as leave, attendance, payroll, and performance management. This deep system integration ensures accurate, personalised, and secure support, delivered within seconds and backed by UAE Federal HR Law citations.[19]

This approach positions the HR AI Agent not as an add-on technology but as an **embedded digital employee** within federal HR teams.

The HR AI Agent sits atop a sophisticated multi-agent architecture designed specifically for high-stakes government HR and legal use cases. Its backend combines open-source and sovereign cloud LLMs, advanced RAG pipelines, multilingual embeddings, and secure API integrations with ERP, HRMIS, Data Warehouse, and analytics platforms. Key components include:

- **Policy Agent:** Retrieves HR laws and regulations with article-level citations
- **Profile Agent:** Accesses employee records to contextualise responses
- **Transaction Agent:** Executes HR self-service actions end-to-end
- **Data Agent:** Provides dashboards, KPIs, and workforce analytics
- **Intent Classifier:** Routes each request to the correct specialised agent

This architecture ensures **explainability, accuracy, compliance, and security**, all of which are essential in federal HR operations.

Initially developed as a proof of concept in late 2023, the HR AI Agent rapidly evolved into a high-maturity, fully deployed federal platform by April 2024. Rollout across **40+ federal entities** followed a structured, multi-phase approach:

Phase 1 (2024):
HR law queries, core self-services, AI-based policy guidance

Phase 2 (2025):
Advanced reasoning, expanded transactions, deeper system integration

This evolution was supported by continuous refinement in prompt engineering, restructuring of HR policies into machine-readable formats, and strict adherence to data sovereignty and UAE AI ethics guidelines.

Within its first operational cycles, the HR AI Agent has delivered measurable improvements in federal workforce services and HR operational efficiency:

Key Outcomes

22,500+
interactions handled with 99% uptime

50–60%
faster HR transactions across leave, payroll, and performance workflows

55,000+
employee hours saved annually

85–90%
accuracy in legal and policy responses

50%
reduction in HR helpdesk load

70%
increase in user satisfaction

The avatar-enabled, bilingual (Arabic/English), voice-interactive experience has significantly boosted adoption and trust among federal employees.

Beyond operational impact, the HR AI Agent sets a precedent for responsible AI deployment in government:

- **Explainability:** Citation-backed answers for all legal and policy guidance
- **Governance:** Strict RBAC, privacy controls, and auditability
- **Fairness and Safety:** Guardrails reducing hallucinations by over 85%
- **Scalability:** Serving 50,000+ employees and 1,000+ concurrent users

This aligns with the UAE's commitment to deploying AI tools that are accurate, transparent, and citizen-centric.

The HR AI Agent demonstrates how the UAE can transform mission-critical government operations through advanced AI. It showcases the **federal government's ability to operationalise AI at scale in HR**, traditionally one of the most complex, policy-intensive domains.



03

The Smart Mission Project by UAE's Ministry of Foreign Affairs

The Smart Mission Project is the new operating model of the Ministry of Foreign Affairs (MoFA) for delivering consular services through a fully unmanned, AI-enabled system. The project replaces manual workflows and staff-dependent steps with a standardised digital process capable of completing services in approximately two minutes, compared to 1-2 days previously. Smart Mission ensures consistent quality across missions and enables operations without on-site staff.

The solution is deployed in UAE embassies in Seoul, Copenhagen, Helsinki, and Lisbon, and several others planned in 2026 and 2027.[20]

Prior to Smart Mission, consular services followed traditional manual procedures where documents were collected in batches and signed once daily by diplomats, creating significant delays. Walk-in services required 1-2 days, while delivery services required 2 days. Service quality varied between missions based on staffing levels.

Smart Mission introduces a unified, unmanned service framework supported by three core components. **Automated Identity Verification** employs facial recognition for UAE nationals and passport/ID scanning with OCR for non-nationals, with automated data extraction and validation. **AI-Enabled Document Verification** provides AI signature and stamp verification, automated rule-based checks, and real-time error detection. AI operates as assistive technology with human oversight through remote teller access. **Centralised Remote Support** includes remote teller capability for complex or emergency cases and an AI avatar for multilingual guidance. All missions remain unmanned across all service levels.

Three-Level Service Structure

Level 1

Self-Service

Complete automated journey

Fully Unmanned

Self-Service provides full end-to-end processing through automated flows without human intervention.

Level 2

AI Avatar

Multilingual guidance and Q&A

Fully Unmanned

AI Avatar offers a life-size digital assistant providing step-by-step guidance, multilingual support, and answers to standard questions, with escalation to remote tellers for complex queries.

Level 3

Remote Teller

Live agent for exceptions

Mission Unmanned

Remote Teller connects customers with MoFA call centre agents for exception handling or urgent cases while the mission remains unmanned.

Smart Mission Workflow

01	02	03	04	05
ID Verification	**Service Selection**	**Document Scan**	**AI Verification**	**Payment & Completion**
Facial recognition or passport scan	Choose attestation or verification	Upload documents via EPOD	Automated checks	Process payments and receive receipt

Total processing time: ~ 2 minutes

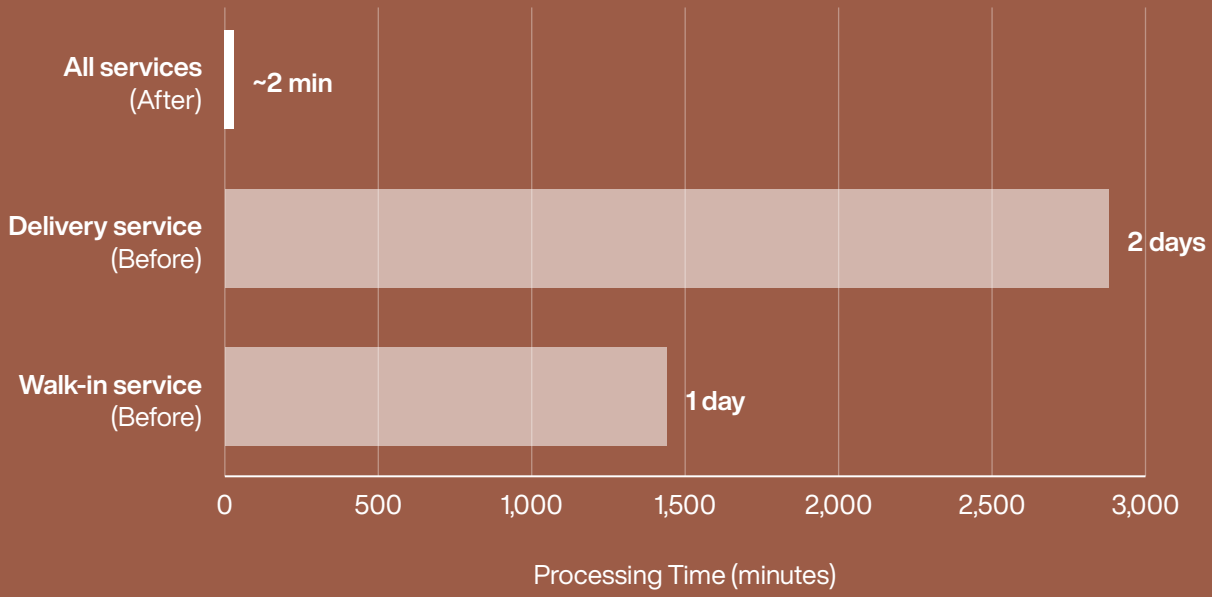
The complete customer journey follows five streamlined steps totalling approximately two minutes:

1. Identity verification through facial recognition or passport scanning,
2. Service selection from available attestation or verification options,
3. Document scanning with automatic quality checks,
4. AI verification of signatures, stamps, and authenticity, and
5. Payment processing with immediate digital confirmation.

Services and Impact

Smart Mission supports commercial and personal document attestation, Return Document, To Whom It May Concern certificates, Tawajudi Registration, AI-powered signature and stamp verification, customer Q&A via AI avatar, and remote teller escalation for complex or emergency situations.

Processing Time Reduction



The transformation delivers 99% improvement in processing speed, missions operating without on-site staff, improved accuracy through automated verification, consistent standards across missions, faster and more reliable customer processing, multilingual assistance, and accessibility features for people of determination.

Deployment, Governance, and Accessibility

Deployment:

- **Current:** Seoul, Copenhagen, Helsinki, Lisbon, Paris
- **Roadmap**: Expansion to 5–10 additional missions by 2025–2027

Governance and Security – Government-grade encryption protects all transactions. All processing occurs within MoFA systems ensuring sovereign control. Remote teller access is fully logged and monitored. AI operates as assistive technology with human oversight.

Accessibility – Service support enables access for people of determination. Audio guidance provides voice navigation. Adjustable-height interfaces accommodate wheelchair accessibility. Clear multilingual instructions ensure comprehension across diverse populations.

Audio Guidance
Voice navigation and instructions

Adjustable Height
Wheelchair accessible

Multilingual Signage
Clear instructions in multiple languages

The Smart Mission Project establishes a new global benchmark for consular service delivery. By integrating automation, artificial intelligence, and centralised remote support into an unmanned operating model, the project delivers a secure, scalable, and internationally replicable framework for modern diplomatic services.

> The UAE MoFA continues to lead in the adoption of advanced technologies to enhance operational excellence, customer experience, and global service standards.[21]



04

AI Governance

Dubai Centre for Artificial Intelligence (DCAI)

When His Highness Sheikh Hamdan bin Mohammed bin Rashid Al Maktoum launched the Dubai Centre for Artificial Intelligence (DCAI) in 2023, he set in motion a vision that redefined how cities prepare for the future. It was not simply the creation of another government institution but a bold commitment to ensure that artificial intelligence becomes a meaningful part of everyday governance in Dubai.[22]

Dubai Centre for مركـــز دبي لاستخدامات
Artificial Intelligence الذكاء الاصـــطناعي

جزء من مؤســـسة دبي للمســـتقبل
Part of Dubai Future Foundation



Image 4: His Highness Sheikh Hamdan bin Mohammed bin Rashid Al Maktoum, Crown Prince of Dubai, Chairman of The Executive Council of Dubai and Chairman of the Board of Trustees of the Dubai Future Foundation announced the launch of the Dubai Centre for Artificial Intelligence (DCAI) (Credits: Dubai Media Office)

DCAI is hosted at the Dubai Future Foundation as a key initiative, in partnership with the Digital Dubai Authority, the Dubai Electricity and Water Authority (DEWA), and the Dubai Media Council. The DCAI embodies a whole-of-government model centred on practical, impactful deployment of AI in governmental organisations. Its mandate is to ensure that artificial intelligence is harnessed as a practical tool to enhance service delivery and promote data-driven decision-making, while safeguarding the trust and experience of Dubai's citizens.

Within its first year, DCAI led the rapid creation of specialised taskforces in over 30 government entities, expediting the shift from AI experimentation to real-world adoption. These teams have implemented solutions that automate critical services, strengthen data-driven policy, and set benchmarks in cross-government capacity building.

> DCAI has launched a series of transformative national initiatives that signal Dubai's commitment to responsible, impactful, and future-ready AI adoption in government.



Image 5: Dubai AI Seal Tiers. For demonstration purposes only.

The **Dubai AI Seal** stands out as an innovative certification framework that ensures all AI solutions deployed across public-sector entities meet rigorous requirements for trust, transparency, and accountability. Receiving the AI Seal is a prerequisite for companies seeking to partner with Dubai government agencies on AI-related projects, making it a crucial benchmark for technical reliability and ethical standards.[23]

The certification uses a multi-tier system, ranking organisations from E to S based on their demonstrated economic impact and adherence to Dubai's rigorous AI ethics and transparency criteria. Each certified provider receives a unique serial number, supporting easy public verification and reinforcing Dubai's commitment to trusted, innovative, and accountable AI deployment across government services. This initiative positions Dubai as a regional and global leader in responsible AI, underlining the city's drive for operational excellence and trust in digital government.

To drive leadership and raise capacity building, the **DCAI initiated the appointment of Chief AI Officers (CAIOs)** in Dubai governmental entities, fostering strategic alignment and accelerating the integration of AI tools into daily operations. The introduction of CAIOs across Dubai's government entities represents a strategic leap forward in institutionalising AI leadership and accelerating digital transformation. By appointing these senior leaders, often with deep expertise in data, operations, and technology strategy, Dubai has ensured robust, accountable stewardship over public-sector AI adoption. CAIOs are empowered to set organisational AI budgets, drive the creation of business cases, and oversee the design and implementation of real-world AI solutions, leading to 36% higher returns on AI investments where centralised decision-making structures are in place.

This initiative has enabled swift deployment of AI in urban planning, transportation, and public service delivery, while cultivating vital cross-sector collaboration and skills development through dedicated international knowledge programmes and strategic partnerships. As a result, Dubai's CAIO Program has become a regional and global benchmark – demonstrating that committed leadership, clear mandates, and strong institutional support are essential for unlocking the full potential of artificial intelligence in government.[24]



Image 6: Sheikh Hamdan bin Mohammed bin Rashid Al Maktoum, Crown Prince of Dubai and Deputy Prime Minister (Credits: Dubai Media Office)

As part of its broader impact, DCAI also introduced the **One Million Prompters initiative,** equipping the citizens and residents with the right AI literacy and tools to equip everyone with the right skillsets and awareness. These programmes collectively position Dubai as a regional and global benchmark for ethical, collaborative, and citizen-centric AI governance.[25]

The One Million Prompters initiative, launched under the patronage of His Highness Sheikh Hamdan bin Mohammed bin Rashid Al Maktoum and overseen by the DCAI, is the world's largest programme dedicated to AI prompt engineering skills development.

> This ambitious effort aims to equip one million individuals across Dubai, the UAE, and the globe with the practical expertise required to master prompt creation, effectively interact with AI systems, and unlock productivity in a rapidly evolving digital economy.

Spanning four comprehensive modules, the initiative's curriculum covers the fundamentals of AI and prompt literacy, advanced conversational techniques with chatbots, AI-powered workflow optimisation, and creative applications in generative AI. Upon successful completion, participants receive accredited certifications, positioning them as future-ready contributors to workplaces shaped by generative AI. By democratising access to prompt engineering education and building on the momentum of global challenges such as the Prompt Engineering Championship, the initiative supports Dubai's Universal Blueprint for Artificial Intelligence and solidifies its position as a global hub for digital skills, innovation, and inclusive AI adoption.

DCAI's mandate extends beyond deploying tools; it's about building an entire AI ecosystem within the government that branches out into three main pillars:

Governance and Ethics:
The *Dubai AI Seal* builds public confidence by certifying safe and ethical AI systems.

Talent and Training:
Government employees are being trained to integrate AI and generative tools into daily operations.

Digital Innovation:
In partnership with **Digital Dubai**, DCAI helped launch *Dubai.AI* – a generative AI-powered platform offering citizens and businesses a more intuitive way to access services.

The impact of DCAI's first year has been transformative:

- **Over 30 entities** now have active AI taskforces identifying opportunities and piloting projects.
- The **Dubai AI Seal** is helping standardise AI governance across public and private sectors.
- The **Dubai.AI** platform is setting a new regional benchmark for digital citizen engagement.
- Internationally, DCAI is positioning Dubai as a **testbed for responsible AI regulation and innovation**, reinforcing its role as a leader in the global AI community.

DCAI is more than a centre, it's a governance innovation model. It represents how Dubai translates ambition into systems that deliver measurable change, creating a government that is not just digital but truly agile and future-ready.

Spotlight:
The Dubai Centre for Artificial Intelligence (DCAI) AI Accelerator

The Dubai Centre for Artificial Intelligence (DCAI) AI Accelerator is a flagship government innovation program launched to accelerate the adoption of artificial intelligence across Dubai's public sector. Since 2023, the accelerator has worked directly with government entities to identify high-impact AI opportunities, develop implementation roadmaps, and support the deployment of AI-powered solutions that enhance public services and operational efficiency. Through structured acceleration cycles, participating entities receive access to technical expertise, industry partners, and tailored support to move from concept development to practical implementation, helping bridge the gap between AI ambition and real-world government adoption.

Building on the success of previous cohorts, the 2025 edition expanded its focus on enabling government entities to deploy transformative AI solutions that address strategic challenges and improve the experience of citizens, residents, and businesses. The program brings together public sector leaders, AI experts, and technology partners to accelerate experimentation, capability building, and implementation readiness. By fostering collaboration across government and industry, the DCAI AI Accelerator contributes to Dubai's broader vision of becoming a global leader in the responsible adoption of artificial intelligence while strengthening institutional capability and creating a pipeline of scalable AI use cases across the public sector.

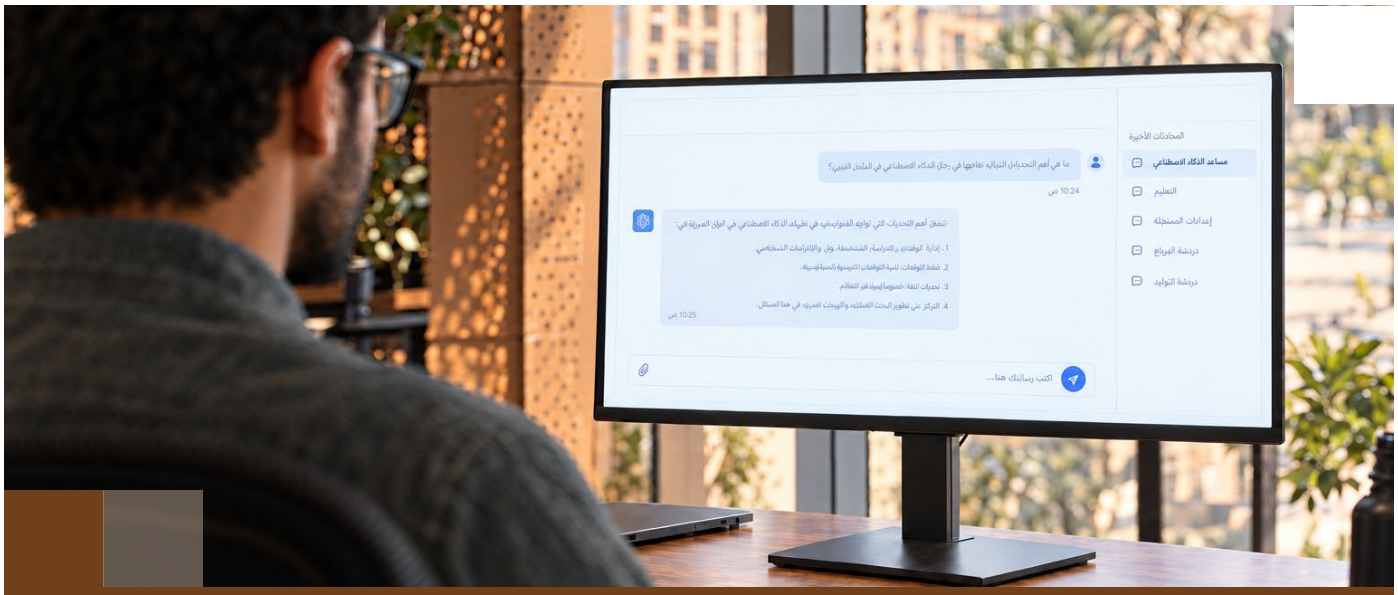


05

Arabic LLMs

Arabic large language models (LLMs) are emerging as a strategic pillar of the UAE's AI programme, with Jais and Falcon Arabic as two flagship initiatives illustrating complementary approaches to Arabic-centric foundation models.

Jais is an open, Arabic-centric bilingual LLM jointly developed by G42/Core42, the Mohamed bin Zayed University of Artificial Intelligence (MBZUAI), and Cerebras Systems to provide high-quality Arabic and English capabilities on a UAE-based compute and data stack. It was initially released as a 13-billion parameter model and later expanded with 30B and 70B variants, aiming to close the performance gap between Arabic and leading English-centric models while remaining deployable under regional data-sovereignty and localisation requirements.[26]



AI-generated image for illustrative purposes.

Falcon Arabic, by contrast, is an Arabic-optimised member of the UAE-developed Falcon LLM family, designed by the Technology Innovation Institute (TII) under Abu Dhabi's Advanced Technology Research Council as a sovereign, high-performance model for Arabic and multilingual use cases, built on the Falcon 3-7B base to balance strong Arabic performance with cost-effective deployment in government and industry.[27]

> These models are motivated by the **historic under-representation of Arabic in large-scale NLP** despite a community of more than 400 million speakers and growing demand for advanced AI services across the Gulf.

Jais addresses this gap by combining Arabic and English at scale, supporting cross-lingual and code-mixed use cases where institutions need to move seamlessly between both languages. Falcon Arabic, launched in May 2025, focuses more tightly on native Arabic coverage, using a large, high-quality corpus of Modern Standard Arabic and major regional dialects to better capture linguistic diversity and reduce dependence on machine-translated English data. In each case, regional policymakers and enterprises are seeking sovereign AI infrastructure to retain control over sensitive data, ensure cultural and linguistic alignment, and avoid over-reliance on foreign proprietary models, with both Jais and Falcon Arabic explicitly framed as tools to meet these needs.



AI-generated image for illustrative purposes.

Deployment patterns show how **these Arabic LLMs are already embedding into public-sector and enterprise** workflows.

Jais has been publicly associated with adoption or pilots in multiple UAE government entities and national champions (including the Ministry of Foreign Affairs, the Ministry of Industry and Advanced Technology, the Department of Health – Abu Dhabi, ADNOC, Etihad Airways, and First Abu Dhabi Bank), where it underpins bilingual virtual assistants, translation and summarisation of policy and legal documents, internal knowledge search, and domain-specific analytics in diplomacy, healthcare, aviation, banking, and energy. Falcon Arabic extends an existing Falcon ecosystem that includes larger open models such as Falcon-40B and Falcon-180B already used globally for content generation, customer service, translation, and research assistants. Within this ecosystem, Falcon Arabic is positioned for Arabic-first chatbots and virtual assistants for public services, Arabic document summarisation and translation, enterprise knowledge search, and sector-specific fine-tunes in finance, media, education, and other knowledge-intensive domains; mission-oriented derivatives such as AgriLLM show how the Falcon stack can support vertical public-good applications in agriculture and, by extension, in climate or public health.

Strategically, the Jais and Falcon Arabic initiatives reinforce each other within a broader "Arabic AI" landscape. Both are framed as sovereign, locally governed alternatives to foreign foundation models, enabling self-hosting on regional infrastructure, alignment with local data-protection rules, and closer control over safety, bias, and content policies. They illustrate how a national strategy can blend larger bilingual models and compact Arabic-first models to cover a broad spectrum of public-sector, commercial, and mission-driven use cases.[28]

UAE
Centre for the
Fourth Industrial
Revolution

Malaysia
Centre for the
Fourth Industrial
Revolution

Rwanda
Centre for the
Fourth Industrial
Revolution

Malaysia AI Use Cases



Malaysia AI Landscape



AI-generated image for illustrative purposes.

Malaysia is emerging as one of Southeast Asia's most ambitious nations in integrating AI into its national development agenda. Much like the UAE and Rwanda, Malaysia does not treat AI as a singular technological pursuit but as a transformative enabler of economic competitiveness, social progress, and governance reform. AI is positioned as a significant enabler within the **Malaysia Digital 2030 (MD 2030) Action Plan** and the **National Fourth Industrial Revolution (4IR) Policy**, both of which re-emphasise productivity growth, sustainability, and inclusivity within the 13th Malaysia Plan (RMK-13).[29,30] This vision was formalised through the Malaysia **National Artificial Intelligence Roadmap 2021–**2025**,** which outlines Malaysia's pathway toward becoming a regional leader in responsible and human-centric AI supported by strategic thrusts in talent development, governance, research and innovation, and multi-sector adoption.[31] Malaysia's long-standing recognition of technology as a driver of structural transformation underpins this vision.

Institutions such as the **Malaysia Centre for the Fourth Industrial Revolution (MYCentre4IR)** and AI M**alaysia Berhad serve** as coordination platforms between the public sector, academia, and industry, ensuring that AI development aligns with ethical standards, global best practices, and Malaysia's socio-economic priorities.[32,33]

Building on this foundation, the R**MK-13** envisions the country as an **AI Nation by 2030,** built on inclusivity, sustainability, and innovation. This vision is anchored in the AI Nation Framework, which emphasises forward-looking policies, a digitally fluent workforce, secure infrastructure, digital trust, and strategic investments. AI Malaysia Berhad was established as the central auth**ority overseeing the National** AI Action Plan 2026-2030, which was launched in July 2026. The Plan serves as a detailed roadmap to ensure that AI adoption drives economic growth, global competitiveness and social equity, in line with national ambitions.[34]

Ecosystem development is reinforced by initiatives from the Malaysia Digital Economy Corporation (MDEC) such as the DataKITA initiative launched in 2020, as part of the efforts to strengthen national readiness for big data and AI adoption.[35] TalentCorp and MyDIGITAL Corporation, along with other entities, further support the development of an AI-ready workforce through initiatives such as MyMahir **and the establishment of the National AI Council for** Industry, strengthening AI literacy, data analytics, and automation skills across higher education and industry programmes, while ensuring closer alignment between talent development and evolving industry needs.[36] Complementing this is the National Data Sharing Policy and enhancements to the Malaysia Open Data Portal, fostering robust data ecosystems for AI development.[37]

Malaysia places strong emphasis on trusted and ethical AI.

The **National Guidelines on AI Governance and Ethics** establish key principles for the responsible development and deployment of AI, including fairness, transparency, and accountability while supporting innovation through regulatory sandboxes in sectors such as finance, energy, and healthcare.[38] This approach seeks to ensure that technological advancement is accompanied by appropriate safeguards and regulatory oversight. Across Malaysia, AI adoption is gaining traction across several key sectors.

Malaysia's AI applications are already visible across key sectors In h**ealthcare**, AI supports diagnostics, predictive analytics, and pandemic response modelling through collaborations between local innovators and global partners such as Microsoft and Huawei. **Agriculture** benefits from precision farming, pest management, and crop optimisation technologies that enhance food security and smallholder productivity. **Manufacturing** – particularly in the electrical and electronics (E&E) and automotive industries – has adopted AI-driven robotics, predictive maintenance, and quality control. Education is being transformed through adaptive learning tools and personalised AI-enabled platforms, while smart cities projects in Cyberjaya and Iskandar Malaysia integrate AI into traffic management, public safety, and energy optimisation.

Malaysia's AI vision also extends internationally. The government engages actively with global platforms such as the **World Economic Forum** to advocate for human-centred AI governance and cross-border digital interoperability. Through MYCentre4IR, Malaysia contributes to the co-development of frameworks on ethical AI, data governance, and sustainable technology deployment.

Entrepreneurship and innovation play a significant role in Malaysia's AI trajectory. The growing number of startups in fintech, logistics, and climate technology is supported by accelerators such as **MDEC's Global Acceleration and Innovation Network (GAIN)** and **Cradle Fund**. Initiatives like MyDigital ID and **Digital Free Trade Zone** ensure that AI adoption is inclusive and accessible to SMEs and the broader business ecosystem.

Ethical foresight remains a defining characteristic of Malaysia's AI landscape. Policymakers acknowledge the risks of unchecked AI deployment, including inequality and privacy erosion, and therefore emphasise human-centricity, transparency, and inclusivity across governance frameworks, education, and workforce development programmes. Together, these efforts reflect a comprehensive and value-driven national AI development approach. Malaysia is steadily transitioning from being an adopter of foreign technologies to a co-creator of AI-driven **innovation ecosystems** in Southeast Asia. By aligning policy foresight, industrial application, ethical governance, and talent development, Malaysia is shaping an AI future that is inclusive, competitive, and globally connected – one that enhances national progress and well-being of all Malaysians.

Looking ahead, Malaysia's AI landscape is entering a new phase of transformation, marked by stronger national AI coordination, expanding AI infrastructure and capabilities, deeper industry integration, and an increased emphasis on AI governance, safety and trust.



01

YTL's ILMUchat

Overview

The **Intelek Luhur Malaysia Untukmu (ILMU)** model is Malaysia's first fully home-grown multimodal large language model (LLM), developed by YTL AI Labs in partnership with Universiti Malaya, and launched at the ASEAN AI Malaysia Summit in August 2025.[39] Designed specifically for Malaysia's linguistic, cultural, and data sovereignty needs, ILMU processes and generates text, audio, and visual inputs. Its capabilities cover Bahasa Melayu/Malay, Manglish (a mix of Malay and English), and regional dialects, supported by locally hosted infrastructure to ensure national data residency and sovereign control.



Image 1: ILMUchat Technical Report[40]

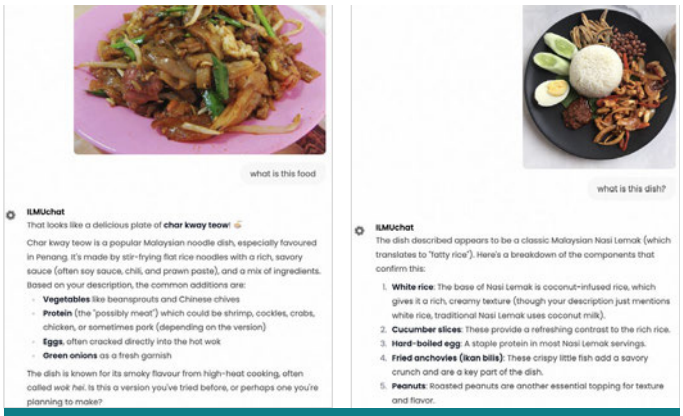


Image 2: ILMUchat Technical Report[42]

ILMUchat, launched on Malaysia Day 2025, is Malaysia's first LLM-powered chatbot built directly on ILMU's multimodal foundation model.[41]

The system delivers context-aware interactions, enabling users to engage in natural conversation shaped by Malaysian cultural norms, language use, and everyday references. Performance on the Malay Massive Multi-task Language Understanding (MalayMMLU) benchmarks demonstrates strong comprehension of national curriculum, local terminology, and Malaysian-specific knowledge, ranging from food and cultural practices to landmarks and local expressions.[43]

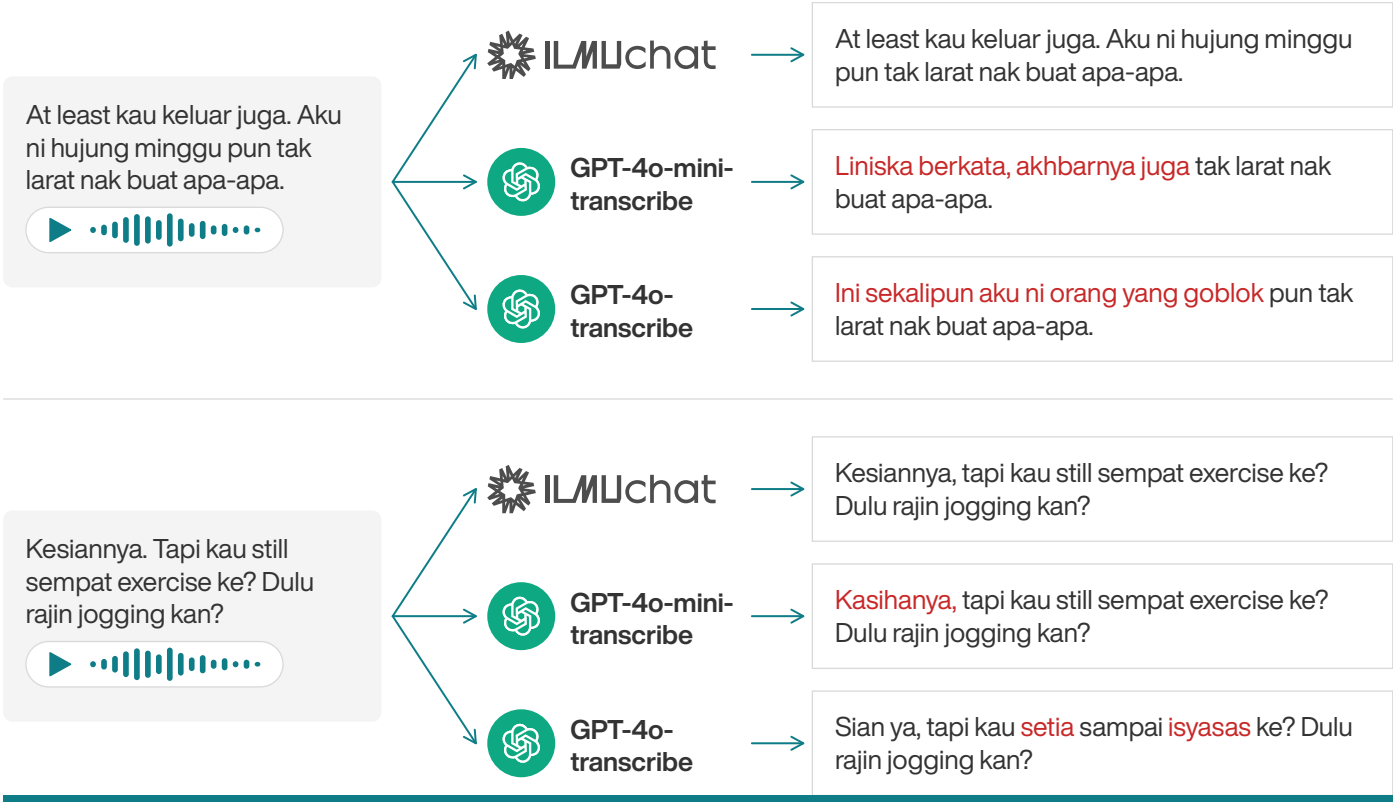


Image 3: ILMUchat Technical Report[44]

Early audio pilots also show superior accuracy in transcription, particularly for Malaysian accents and code-switched Malay-English speech patterns that typically challenge global Automatic Speech Recognition models.

Achievements

ILMUchat has demonstrated strong real-world performance across consumer, enterprise, and regulated environments. Within its open beta, the chatbot has onboarded more than **10,000 Malaysian users**, validating strong demand for a Bahasa Melayu–first, culturally aligned AI assistant.[45] Users utilise ILMUchat for enquiry support, content generation, problem solving, and tasks requiring culturally accurate contextual reasoning grounded in Malaysian norms and institutions. Beyond consumer deployment, the ILMU model supports mission-critical applications through custom agentic AI solutions. A flagship example is its integration into Ryt AI, the intelligent assistant powering the world's first AI-driven digital bank. This deployment demonstrates ILMU's ability to operate at banking-grade reliability standards, including high-assurance reasoning, secure handling of sensitive transactions, and full compliance with Malaysian data protection and financial regulations requirements.

Significance

ILMU and ILMUchat represent a strategic shift in how Malaysia positions itself in the global AI landscape. By developing its own sovereign foundation model, Malaysia reduces external dependency on foreign AI systems, strengthens national data sovereignty, and builds indigenous intellectual property in a technology that increasingly underpins economic infrastructure.

ILMUchat improves digital inclusion by enabling AI access in national language and local linguistic varieties, enabling broader participation among citizens who are underserved by English-dominant global tools. For businesses, ILMU provides a trusted pathway to adopt AI while maintaining regulatory confidence, particularly in sensitive sectors such as finance, energy, and government. Regionally, YTL's sovereign AI stack and ILMU model present a scalable framework for emerging economies seeking to build AI capability on local infrastructure, in local languages, and under domestic governance. ILMU is therefore both a national technology asset and a strategic instrument for digital nation-building that demonstrates Malaysia's long-term objectives under the Malaysia Digital Economy Blueprint (MDEB), the National AI Roadmap, and broader digital economy initiatives.



02

Inventory Management System

Overview

Tenaga Nasional Berhad (TNB), Malaysia's leading energy utility, operates a massive 43-hectare warehouse facility that stores a wide variety of electrical assets such as transformers, insulators, cable drums, and switchgear.[47] Historically, verifying inventory across this large facility required manual walkthroughs that took up to **three months per cycle**, resulting in outdated asset records due to constant equipment movement.

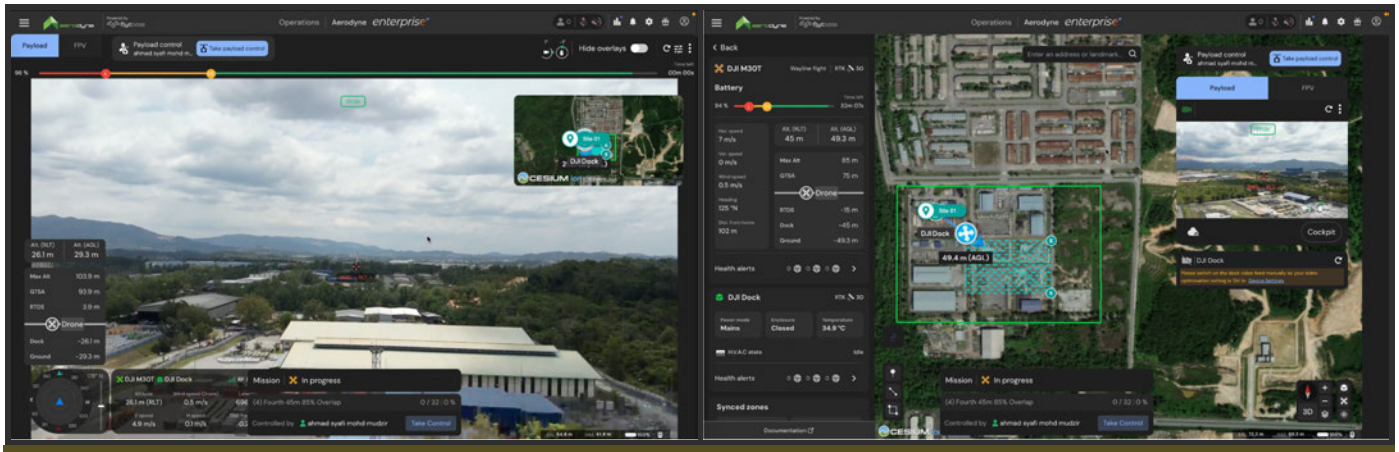


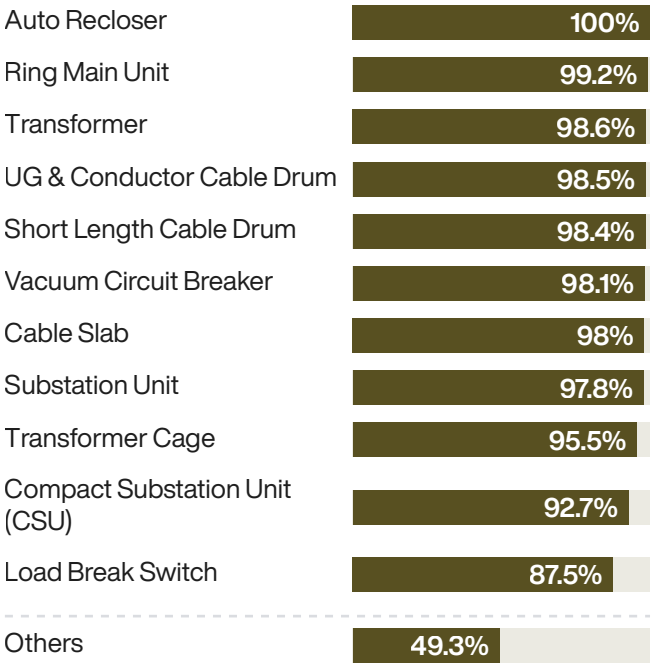
Image 4: Optimizing Warehouse Asset Monitoring with Docked Drones[46]

To modernise this process, TNB partnered with **Aerodyne Group** (a drone-technology and data analytics firm) and **FlytBase** (providing enterprise drone autonomy software) to deploy a fully autonomous drone dock system. The system uses a DJI Matrice 30 drone housed in a DJI Dock, connected via Starlink and integrated with FlytBase's Enterprise platform on AWS.

The warehouse is divided into sectors, enabling the drone to perform daily automated missions (weather permitting), capturing roughly 2,000 aerial images per flight. These images are uploaded directly to the cloud, where AI models detect, classify, and count the assets, presenting results to warehouse managers through a centralised dashboard within 24 hours.

The solution is primarily driven by computer vision and machine learning. Custom AI models trained on TNB's asset types analyse drone-captured imagery to identify transformers, cable bundles, insulators, and other components. Running in the cloud allows the system to scale, process imagery efficiently, and deliver accurate and actionable asset insights.

Detection accuracy by asset type



Optimizing Warehouse Asset Monitoring with Docked Drones[48]

Achievements

What used to take three months can now be done daily, with results ready in 24 hours. This equals a **~90× faster verification cycle**. The AI system achieves **~90% overall detection accuracy** for critical electrical components. For specific categories: transformers are recognised with **~95% accuracy; cable bundles with ~80–85%; insulators above 90**%.

With frequent, automated image capture and processing, TNB now has near-real-time visibility into the quantity and location of each type of asset it holds. The system can also identify empty spaces, which helps with planning where to place new deliveries or how to reorganise for better space utilisation.

Warehouse managers are using the updated, accurate inventory data to make data-driven decisions rather than relying on outdated manual checklists. Better space utilisation means TNB can more optimally allocate storage, reducing waste or underused areas.

Significance

This project marks a major milestone in the **digital transformation of Malaysia's resource and inventory management sector**. By combining autonomous drones with AI-driven image analytics, TNB has significantly modernised its asset management processes, improving operational efficiency, workforce productivity, and data accuracy.

The deployment sets a benchmark for integrating Fourth Industrial Revolution (4IR) technologies into large-scale infrastructure operations. It demonstrates how utilities and heavy industries can achieve safer, more efficient, and more data-centric asset monitoring. The project also strengthens Malaysia's capabilities in drone autonomy, AI vision systems, and warehouse digitisation, which in turn creates a blueprint for adoption across other critical infrastructure sectors such as telecommunications, transport, water utilities, and logistics.



03

Fashion Technology by SARA

Overview

SARA (Smart AI Retail Assistant) is an AI-powered retail intelligence and automation platform developed by **Saratix,** a Malaysian software and data services company, delivering AI-powered services for business needs, in collaboration with two Malaysian universities under formal research and development partnerships. Initially designed to address inefficiencies in fashion retail, SARA has evolved into a modular AI engine that now supports wider sectors such as finance, oil and gas, warehouse management, and engineering.

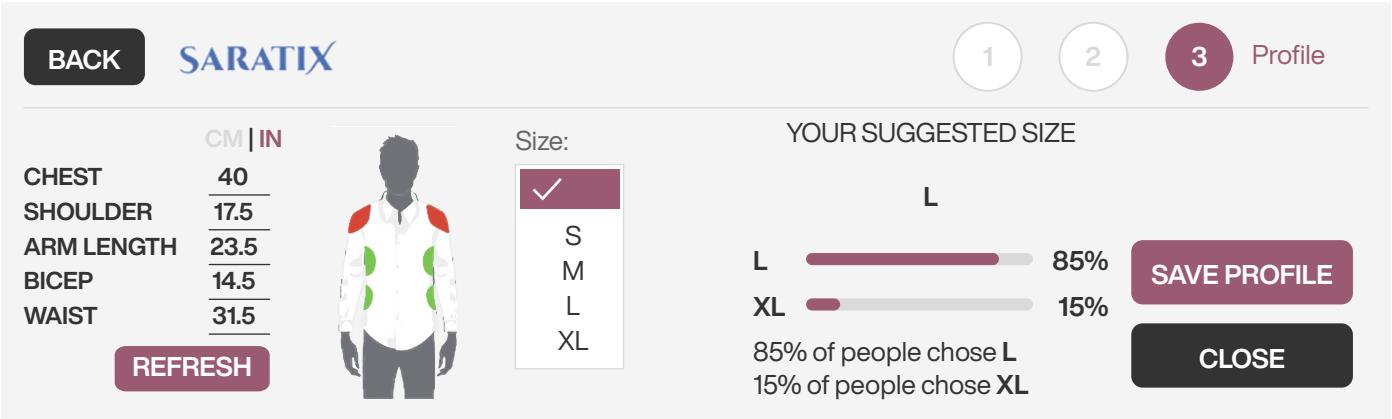


Image 5: Image analysing using SARA[50]

The platform responds to long-standing challenges in fashion retail, particularly in SMEs such as manual merchandising processes, fragmented customer data, inaccurate demand forecasting, and high product return rates driven by sizing uncertainty. These issues affect profitability and scalability and they often prevent smaller retailers from competing effectively in digitally driven markets.[49]

SARA is built on a **deep learning–driven architecture** purpose, designed for fashion retail, integrating machine learning, computer vision, and predictive analytics to automate operations and deepen customer personalisation. SARA's deep learning models are trained on extensive datasets covering body measurements and consumer behaviour.

> These models create accurate body profiles and personalised size recommendations, addressing one of online fashion's biggest pain points: incorrect sizing, which is a major driver of returns and customer dissatisfaction.

Using **Convolutional Neural Networks (CNNs), SARA** automatically identifies key product attributes such as colour, pattern, silhouette, and category from apparel images. This ensures consistent, high-quality product data across platforms, improves catalogue accuracy, and reduces manual processing work for retailers. Enhanced metadata also strengthens search accuracy, product recommendation, and merchandising tools.

SARA also incorporates data analytics and predictive modelling to convert aggregated fashion data into actionable retail insights. The platform analyses inventory performance, conversion trends, and return rate indicators to support more effective inventory planning, demand forecasting, and targeted marketing. These insights enable retailers to optimise stock decisions while minimising inefficiencies and excess inventory.

The solution is delivered through mobile integration and cloud-based services, allowing real-time data capture, processing, and reporting at scale. Deployed via secure APIs, SARA integrates seamlessly with existing e-commerce platforms, ERP systems, and retail management tools, enabling adoption without the need for major system changes.

Achievements

SARA's algorithm can measure body size in seconds using only an A4 sheet and smartphone, offering higher profile precision than the traditional height, weight, and other averaging approaches and reducing sizing mismatches in online purchases. By providing accurate fit recommendations and sizing data, SARA directly **supports reduction in return rates by up to 30%,** which tackles a major cost driver in fashion e-commerce and improves the overall customer experience.

The platform generates retail analytics and business reports, enabling brands to understand sales patterns, customer preferences, and inventory performance, which helps improve marketing strategies and operational planning. Insights derived from AI analytics help brands optimise product listing, personalise customer experience, and enhance decision-making, which can boost conversion rates by **approximately 20% and support revenue growth by reducing 15% of inventory holding cost.**[51]

Industry intelligence sources classify SARA's approach as a strategic AI innovation that significantly enhances operations across body fit prediction, analytics, and inventory management, reflecting its role in optimising online fashion retail practices. **Plans for an Augmented Reality fashion experience** and more advanced AI capabilities indicate a roadmap towards immersive shopping tools that further bridge the gap between physical and digital fashion experience.[52]

Significance

The SARA use case demonstrates a practical and scalable implementation of AI in fashion retail that delivers measurable improvements in customer engagement, inventory management, and operational efficiency. By integrating computer vision, predictive analytics, and personalised recommendation engines, SARA enables retailers, particularly SMEs, to leverage capabilities typically accessible only to large enterprises.

With demonstrated alignment to industry adoption trends and positive impacts on key business metrics like conversion, return rate reduction, and order value uplift, SARA exemplifies how AI can drive meaningful business outcomes in fashion e-commerce. Its modular, cloud-native architecture also positions it for multi-industry adaptation, extending its potential value beyond fashion and into adjacent sectors that share similar challenges in product complexity, customer experience, and operational scalability.



04

Mobile Mouth Screening (MeMoSA)

Overview

Mobile Mouth Screening Anywhere (MeMoSA) is a **clinically validated mobile health (mHealth)** platform developed by Cancer Research Malaysia to address late-stage oral cancer detection, particularly in underserved and rural communities. Oral cancer remains a major public health issue in Malaysia, with nearly half of diagnosed patients dying within two years, largely due to delayed diagnosis, geographical isolation, uneven access to dental services, and low public awareness. MeMoSA decentralises oral cancer screening by enabling users or trained healthcare volunteers to capture intra-oral images using a mobile application.

These images are remotely reviewed by dentists and specialists, reducing reliance on resource-heavy outreach programmes and allowing early identification of potentially malignant oral lesions. High-risk individuals are escalated for specialist referral, while low-risk cases avoid unnecessary clinic visits.

MeMoSA is aligned with **Malaysia's National Oral Health Strategic Plan (2022–2030)**, which aims to double early-stage oral cancer detection rates. MeMoSA demonstrates how digital tools can expand screening coverage, improve care equity, and strengthen the country's digital health ecosystem.

Overall Reach

87.7%

12
villages screened

1,863
people screened over 1 year
(10x more than 2022)

2022
Pilot

28
unnecessary trips to the specialist prevented

70%
of images captured by Healthcare Volunteers (HCVs) via MeMoSA® were good quality

3
patients with oral potentially malignant lesions (OPMD) identified and referred for treatment

Median time taken by dentists to review cases via MeMoSA®:
2 hours
ahead of the 48-hour target

0h 48h

98%

- were satisfied by the service received from their HCVs
- agreed that MeMoSA saved their time travelling to hospitals and dental clinics
- agreed that MeMoSA should be introduced to rural populations

96.6% referral accuracy

98.2% specificity via MeMoSA

97% agreed that MeMoSA improved access towards oral healthcare

Cancer Research Malaysia[60]

MeMoSA primarily applies computer vision and deep learning to enhance screening accuracy and reliability, enabling non-specialist users to support early detection without compromising clinical standards.[53]

An embedded real-time AI model assesses image quality so that the oral images captured can be used for remote diagnosis and users receive AI-driven prompts to retake images when they do not fulfil image quality standards, ensuring high-quality images from community settings where clinical expertise may not be available.[54] Pilot studies show that over 70% of images met diagnostic standards based on clinician ratings through this AI-guided workflow. A second AI model analyses images to classify lesions into high-risk (potentially malignant) or low-risk categories. While final diagnosis remains clinician-led, the triage system accelerates case prioritisation, enabling faster referrals and reduced clinical workload.[55,56] The model was trained on more than 30,000 annotated oral images from five Asian countries, ensuring robustness and minimising demographic bias.[57,58] This multi-country, ethnically diverse training dataset is intended to support robust performance across populations, reinforcing the solution's scalability for regional and global deployment.[59]



Image 6: Cancer Research Malaysia[61]

MeMoSA® resolved issues during the COVID-19 pandemic:

- Disrupted Patient Follow-Ups
- Increased Risk of Late-Stage Diagnoses
- Limited Access to Specialists due shortage of in-person consultations

MeMoSA® Teleconsultation Workflow:



Patients upload image for specialist review from home.

Digital consultation and recommendations.

Continuous remote monitoring.

Results & Patient Responses

83%	of patients felt MeMoSA® enhanced their access to care
98%	of patients reported significant time savings
100%	of participants expressed interest in continuing teleconsultation
70%	of patients wanted ongoing teleconsultation integration into their routine care

Achievements

Pilot Community Screening in Sarawak (Dec 2024 – Dec 2025)

MeMoSA has demonstrated strong real-world performance through a pilot deployment. In a 12-month community screening pilot across 12 villages in Sarawak, the programme achieved an **87.7% population reach**, screening 1,863 individuals in one year, more than 10 times the number reached through conventional community screening efforts in previous years. This highlights the platform's ability to dramatically expand coverage with limited additional resources.

Clinically, the solution delivered high diagnostic reliability, **achieving 98.2% specificity** and meeting stringent service benchmarks, including a median case review time of 46 hours, exceeding the 48-hour target set for remote assessments. The programme successfully identified individuals with oral potentially malignant disorders (OPMDs) for specialist referral while preventing 28 unnecessary specialist visits, thereby optimising healthcare system efficiency.

From a system and user perspective, MeMoSA achieved **over 95% community satisfaction and trust**, reflecting strong acceptance of AI-enabled digital health tools even in rural settings. Healthcare volunteers were able to capture clinically usable images in more than **70% of cases,** demonstrating effective task-shifting enabled by AI guidance. In parallel, the AI lesion triage model itself achieved approximately **85% accuracy**, paving the way for further reductions in clinician workload and faster decision-making as the system scales.

Teleconsultation Service at Universiti Malaya Medical Centre

Cancer Research Malaysia conducted another pilot project during the COVID-19 pandemic at Universiti Malaya's Medical Centre, which provided an opportunity for patients with OPMD to have remote follow-ups with their specialists to monitor their oral lesions via MeMoSA. MeMoSA served as an innovative app that **reduced the risk of unmonitored disease progression that could lead to worsening of the disease, especially when patients were not able to get to their clinics for a regular check-up during COVID-19.**[62]

The solution proved effective and resulted in positive feedback, with 83% of patients believing that MeMoSA enhanced their access to oral care/screening. The study successfully managed to onboard 100% of patients to continue teleconsultation, with 98% of them reporting significant time savings. This study of MeMoSA demonstrates the potential and benefits of digitalising Malaysia's healthcare sector – what could be done physically can be done digitally with similar results. Of the patients who received the MeMoSA service at Universiti Malaya's Medical Centre, **70% wanted ongoing teleconsultation integration into their routine care**.[63]

Significance

MeMoSA represents a significant advancement in AI-enabled preventive healthcare. If adopted nationally, Malaysia would become the first country globally to implement a remote, AI-assisted oral cancer screening programme. This could set a new standard for non-invasive, community-based cancer detection in low- and middle-income regions seeking affordable, high-impact digital health solutions.

MeMoSA reduces inequities by ensuring that geographic location and income level do not limit access to early detection. Early-stage diagnosis can lower treatment costs by up to RM60,000 per patient and significantly improve survival and quality of life, benefiting both families and the broader health system.[64] From a policy and digital change viewpoint, MeMoSA aligns with Malaysia's larger health reform and digital plans under the 13th Malaysia Plan and the Ministry of Health's Digitalisation Strategic Plan. It shows how well-managed AI and digital health solutions can create public benefits when integrated into clinically proven processes, while respecting data protection laws, and developed with input from users. With growing interest from Southeast Asia, Europe, and Australia, MeMoSA offers a replicable framework for digital, AI-assisted community health screening. Its emphasis on equity, clinical validation, and responsible AI positions it as a model for future preventive health programmes worldwide.



05

AI in Digital Identity Verification

Overview

WISE AI is an internationally award-winning Malaysian AI R&D company specialising in AI-driven digital identity verification, including electronic Know Your Customer (eKYC), facial recognition, and fraud prevention. Its platform is designed specifically for Southeast Asian demographics and is deployed across high-trust environments such as government agencies, banks, telecommunications providers, insurance companies, fintech firms, and other regulated sectors where security, reliability, and compliance with regulations are essential.

The solution tackles a growing need for large-scale digital service delivery with strong identity assurance, and auditability. Traditional verification methods remain manual, slow, and vulnerable to fraud. WISE AI modernises these processes by integrating AI-powered verification directly into digital workflows, enabling secure onboarding and identity validation without compromising regulatory compliance or requiring human oversight.

WISE AI integrates computer vision, machine learning, visual language models (VLMs), and rule-based logic to deliver reliable and clear digital identity verification systems designed for real-world regulatory environments. Its computer vision models perform facial matching, biometric verification, liveness detection, and anti-spoofing checks using highly accurate image analysis. Importantly, these models are optimised for Southeast Asian facial characteristics, reducing accuracy gaps commonly seen when global biometric models are deployed in a regional context.

WISE AI uses VLMs to analyse identity credentials by interpreting both text and visual features in parallel. This enables the system to extract and validate textual information, assess document layout and security features, and detect irregularities that may indicate forgery or tampering. Moreover, machine learning classification supports fraud detection, risk scoring, and cross-checks to ensure consistency across all user-submitted data. A human-in-the-loop governance model underpins the entire system: AI automates standard and low-risk verifications, while complex, ambiguous, or high-risk cases are escalated to trained human reviewers.

> This layered architecture preserves transparency, explainability, and full regulatory accountability – critical requirements for deploying AI in high-trust, highly audited environments.



Image 7: eKYC Malaysian Identity Card[67]

Achievements

WISE AI's platform has moved past pilot stages and is fully commercialised with active deployments across public and private organisations in regulated sectors. The platform handles high-volume digital onboarding and identity verification workflows with proven operational stability and scalability. Typical implementation timelines range from two to eight weeks, reflecting the maturity, modularity, and integrability of the AI platform.

A significant milestone in validating the solution is its recognition through international certification, benchmarking, and national innovation programmes. WISE AI is the only Malaysian company, and one of the few in Southeast Asia, recognised by the United States National Institute of Standards and Technology (NIST) for facial recognition performance, ranking among the top 25 globally for face matching. Furthermore, the solution has obtained ISO/IEC 30107-3 compliance for Presentation Attack Detection, demonstrating its robustness against spoofing and biometric fraud.[65]

Beyond international standards, the technology has also undergone validation through Malaysia's National Technology and Innovation Sandbox (NTIS) programme. WISE AI successfully completed NTIS Sandbox 1 for its liveness detection technology and has been selected to participate in NTIS Sandbox 2 focusing on identity document fraud detection. In addition, the company's eKYC and face comparison technologies have received MySTI recognition from the Ministry of Science, Technology and Innovation (MOSTI), acknowledging locally developed technologies with strong innovation and commercialisation potential.[66]

WISE AI's proprietary eKYC solution was also selected as a **national AI ethics** use case under Malaysia's AI Governance and Ethics (AIGE) framework. This recognition highlights the system's alignment with responsible AI principles, including transparency, fairness, accountability, and security in the deployment of AI-driven digital identity verification. Collectively, these recognitions provide strong external assurance of the system's reliability, technological maturity, and suitability for deployment in high-risk and regulated environments.

WISE AI also maintains internal expertise in responsible AI governance, with selected personnel certified as IEEE CertifAIEd™ Authorized Assessors, demonstrating the company's internal capability to evaluate AI systems against internationally recognised responsible AI and ethical governance frameworks.

Within Malaysia, WISE AI aligns closely with Bank Negara Malaysia's eKYC Policy Document issued in April 2024. The underlying AI systems have undergone assessments by qualified evaluators, ensuring the platform meets strict audit, compliance, and risk management requirements. This positions WISE AI as a deployable, regulator-ready solution for banks, fintech providers, telecommunications operators, insurers, and government agencies.

Significance

WISE AI's solution demonstrates that responsible, high-assurance AI can be deployed at scale in regulated digital services without weakening governance or public trust. By embedding data governance, privacy protection, fairness considerations, and human oversight directly into system design, it offers a practical model for institutions where verification errors carry significant operational and societal consequences. The platform's optimisation for Southeast Asian demographics addresses a key limitation of imported biometric technologies that often underperform on non-Western faces.

For industry, WISE AI enables digital onboarding and identity-driven processes while maintaining regulatory confidence, supporting faster processing times, reduced manual workload, and more consistent verification outcomes.

For governments and society, the solution strengthens the foundations of trusted digital services, enabling secure access to banking, telecommunications, and public services while reinforcing confidence in AI-enabled digital transformation. WISE AI illustrates how locally developed AI, when designed for regional contexts, regulatory realities, and deployment constraints, can contribute to long-term industry transformation and serve as a reference model for responsible AI adoption across emerging economies seeking trustworthy, scalable digital identity infrastructure.

WISE AI is backed by leading institutional investors, including Sunway Group, Malaysia Technology Development Corporation, and Japan's SBI Group.

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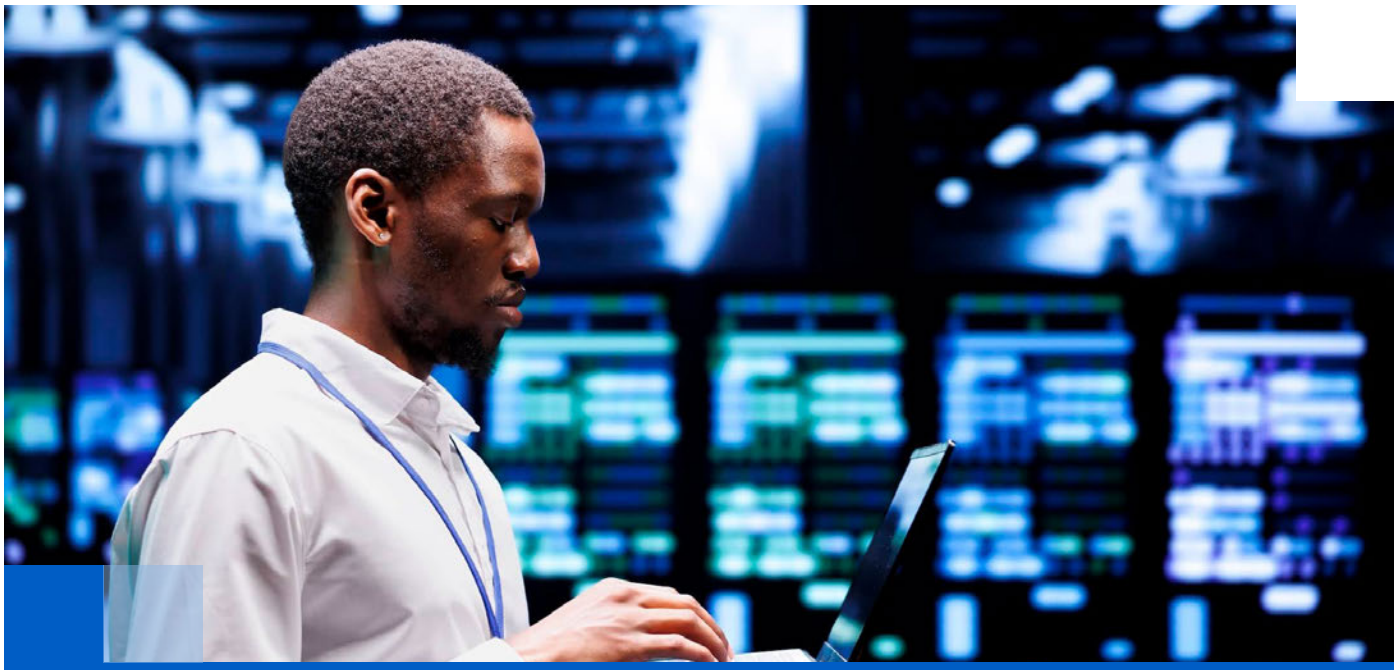
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Rwanda AI Use Cases



Rwanda AI Landscape



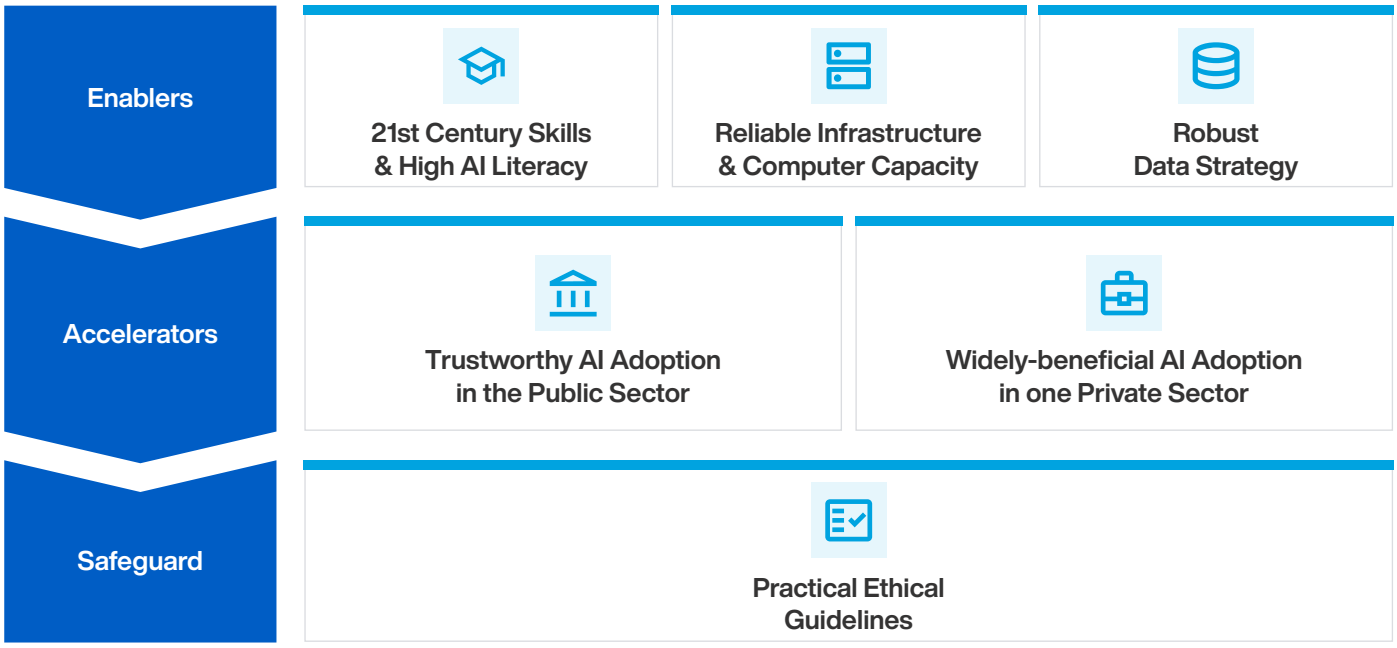
Credit: Rwanda C4IR Website

A Bold National Vision for Responsible and Inclusive AI

Rwanda has articulated a bold national vision for artificial intelligence as a cornerstone of its long-term development strategy. As set out in the National Artificial Intelligence Policy, Rwanda's vision is **to become a global centre for AI research and innovation**, with a mission to leverage AI to power economic growth, improve quality of life, and position Rwanda as a global innovator for responsible and inclusive AI[68]. This ambition is firmly anchored in Rwanda's broader national development frameworks, including Vision 2050 and the Smart Rwanda Master Plan, which identify digital transformation as a key driver of inclusive growth, productivity, and effective public service delivery.

Rather than approaching AI as a purely technological agenda, Rwanda frames artificial intelligence as a national development enabler – one that must be purpose-driven, human-centred, and aligned with societal needs by design. From the outset, the country has recognised that AI's transformative potential is inseparable from its risks. Ethical considerations, public trust, and institutional readiness are therefore embedded at the core of Rwanda's AI strategy, positioning the country as an early African leader in responsible AI governance rather than reactive regulation.

Rwanda National AI Policy: Six Priority Areas



Strategic Leadership and a Policy-First Approach

Rwanda's AI landscape is characterised by strong political leadership and early policy action. Rwanda was among the first countries in Africa to adopt a comprehensive National AI Policy, developed under the leadership of the Ministry of ICT and Innovation in collaboration with the Centre for the Fourth Industrial Revolution Rwanda and a broad set of national and international partners.[69,70] The policy is underpinned by an in-depth diagnostic assessment of Rwanda's AI ecosystem, which identified key structural constraints, sectoral opportunities, and priority interventions required to enable responsible AI adoption at scale.

This evidence-based foundation ensures that Rwanda's AI ambitions are grounded in local realities while remaining aligned with global best practices. The policy is structured around six priority areas, organised across Enablers, Accelerators, and Safeguards: (i) 21st Century Skills and AI Literacy; (ii) Reliable Infrastructure and Compute Capacity; (iii) Robust Data Strategy; (iv) Trustworthy AI Adoption in the Public Sector; (v) Widely Beneficial AI Adoption in the Private Sector; and (vi) Practical AI Ethical Guidelines. Together, these pillars reflect Rwanda's intent to move beyond fragmented pilots towards a coordinated national AI system in which talent, data, infrastructure, governance, and use-case delivery evolve in a mutually reinforcing manner.[71]

Building the Foundations for AI at Scale

Recognising that AI cannot scale without strong digital foundations, Rwanda has placed significant emphasis on data infrastructure, compute access, and cloud readiness. The National AI Policy explicitly positions data as a strategic national asset, describing it as the energy that will fuel Rwanda's ambition to become Africa's AI hub. In response, Rwanda is advancing several foundational initiatives, including the development of a National Data Hub to improve the availability, interoperability, and AI readiness of public-sector data, alongside the establishment of data governance frameworks and data-sharing protocols that enable ethical, secure, and responsible data use across sectors.

In parallel, Rwanda has articulated a clear strategic intent to build sovereign AI-ready compute infrastructure as a foundational enabler of its AI ambitions. Developing affordable, reliable, and locally governed compute capacity is a national priority, particularly to serve the needs of startups, researchers, and public-sector innovators. Rwanda's approach centres on progressively building in-country compute capabilities, supported where necessary by transitional access to external infrastructure during the development phase. This approach prioritises data sovereignty, institutional resilience, and long-term sustainability, while ensuring Rwanda builds the technical and governance capacity required to own and manage its AI compute infrastructure over time.

On the other hand, human capital development sits at the centre of Rwanda's AI agenda. The National AI Policy emphasises long-term investment in AI literacy, advanced technical skills, and applied research capacity, spanning basic education, tertiary training, and professional reskilling. Rwanda's talent strategy includes the integration of AI and data science concepts into primary and secondary education curricula; the expansion of AI-focused university programmes, research fellowships, and partnerships with leading global academic institutions; and the development of apprenticeship and young professional programmes that bridge the gap between education and real-world AI deployment.

In addition to technical expertise, Rwanda places strong emphasis and has started broad-based AI fluency for policymakers, regulators, journalists, and the general public. This reflects a deliberate recognition that informed adoption is essential to building trust, ensuring accountability, and sustaining long-term impact.

> Rwanda's approach to skills development underscores the view that AI transformation is not only technical, but also social and institutional.

From Policy to Practice: A Use-Case-Driven Approach

> A defining feature of Rwanda's AI landscape is its use-case-first orientation.

Rather than prioritising technology for its own sake, Rwanda has focused on deploying AI in sectors where it can deliver immediate and measurable impact, particularly in health, agriculture, education, and public service delivery. Early AI deployments in Rwanda are characterised by strong alignment with national development priorities, close collaboration between government, academia, startups, and international partners, and careful attention to governance, ethics, and human oversight – especially in high-stakes contexts such as healthcare and social services.

To accelerate the transition from pilot initiatives to national-scale deployment, Rwanda launched the Rwanda AI Scaling Hub in early 2025 as a dedicated platform to operationalise its AI ambitions. The Hub was established to address a critical gap in Rwanda's AI journey: while the country has demonstrated strong policy leadership and a growing pipeline of high-potential AI use cases, scaling these solutions across systems and sectors requires sustained coordination, financing, and delivery capacity.

Designed as both a convening and execution mechanism, the AI Scaling Hub brings together government institutions, technology partners, research organisations, funders, and delivery agencies to move promising AI solutions beyond experimentation and into real-world impact. With initial catalytic funding from the Gates Foundation, the Hub supports the full lifecycle of AI deployment, including use-case prioritisation, access to compute and data, solution development, field testing, governance alignment, and pathways to national adoption.[72]

Continental Leadership and Global Engagements

Beyond domestic policy and implementation, Rwanda has deliberately positioned itself as a continental and global contributor to AI governance, particularly from the perspective of emerging economies and small states. Rwanda's approach reflects a strategic choice to not only adopt AI responsibly at home but also to help shape international norms, frameworks, and partnerships that ensure AI supports inclusive and sustainable development globally.

A defining milestone in this effort was Rwanda's convening of the Global AI Summit on Africa, held in Kigali on 4th April 2025, which brought together African governments, global technology leaders, multilateral organisations, academia, and civil society to articulate a shared vision for Africa's AI future.[73] The Summit produced two landmark outcomes. First, the adoption of the Africa Declaration on Artificial Intelligence, signed by over 54 African nations and institutions, which commits signatories to building sovereign, distributed compute infrastructure across all regions of the continent, establishing a $60 billion Africa AI Fund leveraging public, private, and philanthropic capital, and embedding a guiding principle that sovereignty, inclusivity, and diversity in African AI design and deployment should benefit all African communities and reflect Africa's strategic priorities, shared values, and diverse cultural contexts.[74] Second, the Declaration endorsed the establishment of the Africa AI Council, which was formally constituted in November 2025 under the Smart Africa Board with a mandate, in the words of Smart Africa CEO Lacina Koné, to ensure that Africa leads, not follows, in the global AI transformation.[75] These outcomes underscore Rwanda's role as a neutral convenor capable of bridging global technological ambition with African development priorities, while translating Summit commitments into durable continental institutions. Rwanda has also extended this convening role beyond the continent. In September 2024, Rwanda and Singapore co-launched the AI Playbook for Small States under the Digital Forum of Small States, a practical guide that draws on the experience of smaller economies to help them harness AI despite constraints in capital, compute, and talent. The Playbook reflects Rwanda's conviction that small states, though limited in scale, can shape global AI norms through agility, coalition-building, and shared learning.[76]

A Distinctive African Model for AI Development

Taken together, Rwanda's AI landscape represents a distinctive African model – one that combines ambition with institutional discipline, innovation with safeguards, and global engagement with local relevance. By investing early in policy, governance, and foundational capacity, Rwanda is deliberately shaping an AI ecosystem designed not only to adopt emerging technologies but to govern, adapt, and scale them responsibly.

> As Rwanda moves from foundational readiness towards large-scale implementation, its experience offers valuable insights for other emerging economies seeking to harness artificial intelligence as a tool for inclusive growth, public value creation, and long-term resilience.

**This report covers developments up to May 2026. Since drafting concluded, Rwanda has launched the Rwanda Artificial Intelligence Agency to accelerate its ambition of AI-powered social and economic transformation. A fuller account of the Agency's mandate and early work falls outside this report's reporting period and will be covered in future updates.*



01

Deploying AI for Agricultural AI Advisory

Context and Challenge

Agriculture remains the backbone of Rwanda's economy, employing the majority of the population and playing a central role in food security, rural livelihoods, and national economic development[77]. Yet despite its importance, many smallholder farmers continue to face persistent challenges in accessing timely, accurate, and actionable agricultural advice. Public extension services are often overstretched, information is fragmented across institutions, and advisory content is not always localised to farmers' specific crops, locations, or climatic conditions.[78]

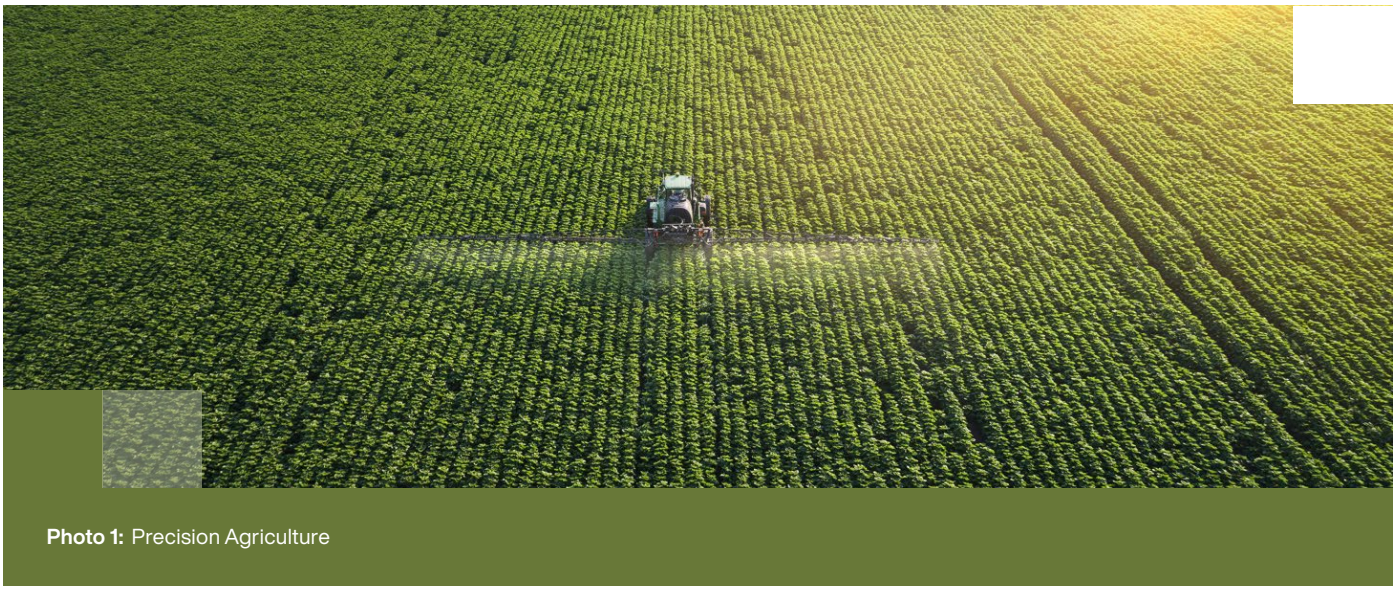


Photo 1: Precision Agriculture

These challenges are compounded by climate variability, pest and disease outbreaks, and market volatility, which require farmers to make increasingly complex decisions in real time. While digital tools offer new opportunities to expand advisory reach, many farmers continue to rely on basic feature phones, limiting access to app-based solutions. Addressing these constraints required an approach that combined **advanced AI capabilities with inclusive, low-cost delivery channels.**

The AI-Enabled Agricultural Advisory Chatbot

> In response, Rwanda designed and deployed an **AI-enabled agricultural advisory chatbot** to provide farmers with localised, on-demand agronomic guidance in their local language.

Developed under the leadership of the Centre for the Fourth Industrial Revolution Rwanda, in close collaboration with the Ministry of Agriculture and Animal Resources (MINAGRI) and other partners, the chatbot is designed to complement and extend existing agricultural extension services rather than replace them.

The system uses large language models combined with deterministic agronomic rules to generate tailored advice on crop management, weather-related decision-making, pest and disease identification, and best agricultural practices. Advisory content is grounded in authoritative data sources, including national agricultural guidelines, meteorological data, and extension service protocols, ensuring that recommendations remain accurate, trusted, and aligned with government policy.

Pilot Delivery Model and Early Implementation Learnings

The pilot phase of the AI-enabled agricultural advisory chatbot was deliberately **narrow in scope**, focusing exclusively on **Interactive Voice Response (IVR)** as the primary delivery channel. This design choice reflected the realities of farmer access in rural Rwanda, where many smallholder farmers rely on basic feature phones and have limited or no access to smartphones or mobile data services.

Through the IVR system, farmers were able to call in and receive **on-demand, voice-based agronomic advice in Kinyarwanda**, covering topics such as crop management, seasonal practices, weather-related decision-making, and common pests and diseases. The voice-first approach proved critical for accessibility, particularly for farmers with low literacy levels, and enabled engagement without requiring prior digital skills.

The pilot was implemented across **four districts**, selected to represent diverse agro-ecological contexts. Its primary objectives were to validate technical functionality, assess usability and farmer trust, and generate evidence to inform the design of a scalable national solution. Importantly, the pilot focused on **direct farmer interaction with the IVR system**, without agent-mediated delivery or additional digital channels at this stage.

Early learnings from the pilot highlighted the importance of highly localised and seasonally relevant content, clear and simple advisory flows, and the need for continuous iteration based on farmer feedback. Usage patterns also underscored the value of voice-based delivery for increasing reach and inclusion, while revealing opportunities to improve responsiveness, personalisation, and integration with complementary data sources as the system evolves.

These insights are now directly informing the **next phase of development**, in which additional delivery channels such as SMS, chat-based interfaces, and integration with other digital platforms will be introduced as part of national scaling. By sequencing innovation in this way, Rwanda is ensuring that expansion builds on validated farmer needs and real-world usage, rather than assumptions about technology access.

Scaling Toward National Impact

Building on the pilot's success, Rwanda is now entering the **scaling phase** of the agricultural advisory chatbot, with the goal of transforming it into a nationwide AI-powered extension service. Over the next three years, the programme aims to **reach one million farmers**, alongside extension agents and agricultural cooperatives, significantly expanding access to timely, trusted agronomic advice.

This scaling phase will be supported by **funding from the Gates Foundation**, enabling investment in infrastructure, content expansion, system integration, and long-term sustainability planning. The scale-up will prioritise integration with national agricultural digital public infrastructure, including farmer registries and agricultural management information systems, to ensure interoperability, data consistency, and institutional ownership.

Governance, Sustainability, and Responsible AI

Strong governance underpins the design and deployment. Advisory content is validated in partnership with government institutions and sector experts, while data governance and privacy safeguards ensure responsible use of farmer information. Human oversight remains central, particularly for complex or high-risk queries, with clear escalation pathways to extension officers and subject-matter experts.

Long-term sustainability is a core design consideration. The scaling phase will explore blended financing and public-private partnership models to ensure the advisory service can be maintained and updated over time without compromising accessibility for smallholder farmers.

Why This Case Matters

The AI-enabled agricultural advisory chatbot demonstrates how **AI can be deployed as a digital public service** to deliver tangible, inclusive impact at scale. By combining advanced AI models with low-tech delivery channels and strong institutional partnerships, Rwanda is showing how countries can leapfrog traditional extension constraints while preserving trust, accountability, and local relevance.

As the chatbot scales nationally, it offers a replicable model for other countries seeking to modernise agricultural extension services, enhance climate resilience, and empower smallholder farmers through responsible, context-aware AI.



02

Rwanda AI Scaling Hub

Context and Challenge

Rwanda's early investment in AI policy, governance, and foundational capacity has resulted in a growing pipeline of high-potential AI use cases across priority sectors such as health, agriculture, education, and public service delivery. However, as in many emerging economies, a persistent challenge remained: while pilot projects and proofs of concept demonstrated promise, **few AI solutions were able to transition from experimentation to sustained national scale**.



Photo 2: Launch of Rwanda AI Scaling Hub at GAISA

This gap reflected a set of systemic constraints rather than isolated project-level failures. These included fragmented coordination across ministries and partners, limited access to shared compute and data infrastructure, regulatory uncertainty in high-risk sectors, and a lack of structured mechanisms to generate evidence, mobilise financing, and embed AI solutions within public systems. Addressing these challenges required a platform that could operate above individual projects, while remaining deeply embedded in government priorities and delivery realities.

The Rwanda AI Scaling Hub: A Platform for Moving from Proof to Impact

In response, Rwanda launched the **Rwanda AI Scaling Hub** in early 2025 as a national platform to operationalise its AI ambitions and accelerate the scaling of validated, responsible, and inclusive AI solutions.
Anchored within the Centre for the Fourth Industrial Revolution Rwanda and operating under the leadership of the Ministry of ICT and Innovation, the Hub was designed to serve as a **multi-stakeholder convening and execution mechanism** bridging policy, innovation, and large-scale implementation.

The Hub's mission is to work in close partnership with government, the private sector, academia, civil society, and development partners to drive AI adoption aligned with national priorities, while laying the groundwork for a sustainable and inclusive AI ecosystem. Rather than replacing implementing partners or duplicating existing initiatives, the Hub provides cross-cutting, sector-agnostic enabling support that individual use cases cannot efficiently access on their own.

> With initial catalytic funding from the Gates Foundation, the Rwanda AI Scaling Hub marks a shift from AI readiness to **AI execution at scale**, positioning Rwanda as both a national delivery platform and a regional learning node.[79]

Operating Model and Strategic Pillars

The Rwanda AI Scaling Hub operates around two mutually reinforcing strategic pillars.

The first pillar focuses on **scaling proven AI use cases** from discovery through to national deployment. While implementing partners retain ownership of solution design, development, and maintenance, the Hub provides structured coordination and specialised support to accelerate progress and reduce risk. This includes dedicated sector-specific programme management, access to shared pools of technical and regulatory expertise, brokering of compute and cloud partnerships, facilitation of data access and governance processes, and support for monitoring, evaluation, and impact generation. Together, these functions shorten the path from pilot to scale while ensuring safety, quality, and alignment with national objectives.

The second pillar focuses on **strengthening the broader AI ecosystem**. Beyond individual use cases, the Hub works to address system-level constraints that cut across sectors, such as data interoperability, compute access, regulatory clarity, and institutional capacity. It maintains ecosystem intelligence to map AI actors and initiatives, develops knowledge products and toolkits based on real-world deployments, and facilitates structured capacity transfer to government institutions. Through regional convenings and global engagement, the Hub also connects Rwanda's experience to broader international learning and cooperation.

Governance and Institutional Design

A defining feature of the Rwanda AI Scaling Hub is its **needs-based, flexible, and performance-focused governance model**. At the highest level, a Joint Steering Committee – comprising senior government leadership and strategic partners – provides oversight, validates priority use cases, ensures alignment with national strategies, and unlocks systemic bottlenecks. This is complemented by advisory and working-level structures that support day-to-day execution while allowing for adaptation across sectors and partnership models.

At the use-case level, tailored governance arrangements ensure strong public ownership, inter-ministerial coordination, and clear accountability for delivery, while preserving the agility needed to respond to evolving technical and operational realities. This layered approach balances top-down strategic direction with bottom-up implementation agility, ensuring a clear line of sight from national priorities to frontline impact.

Early Focus Areas and Emerging Impact

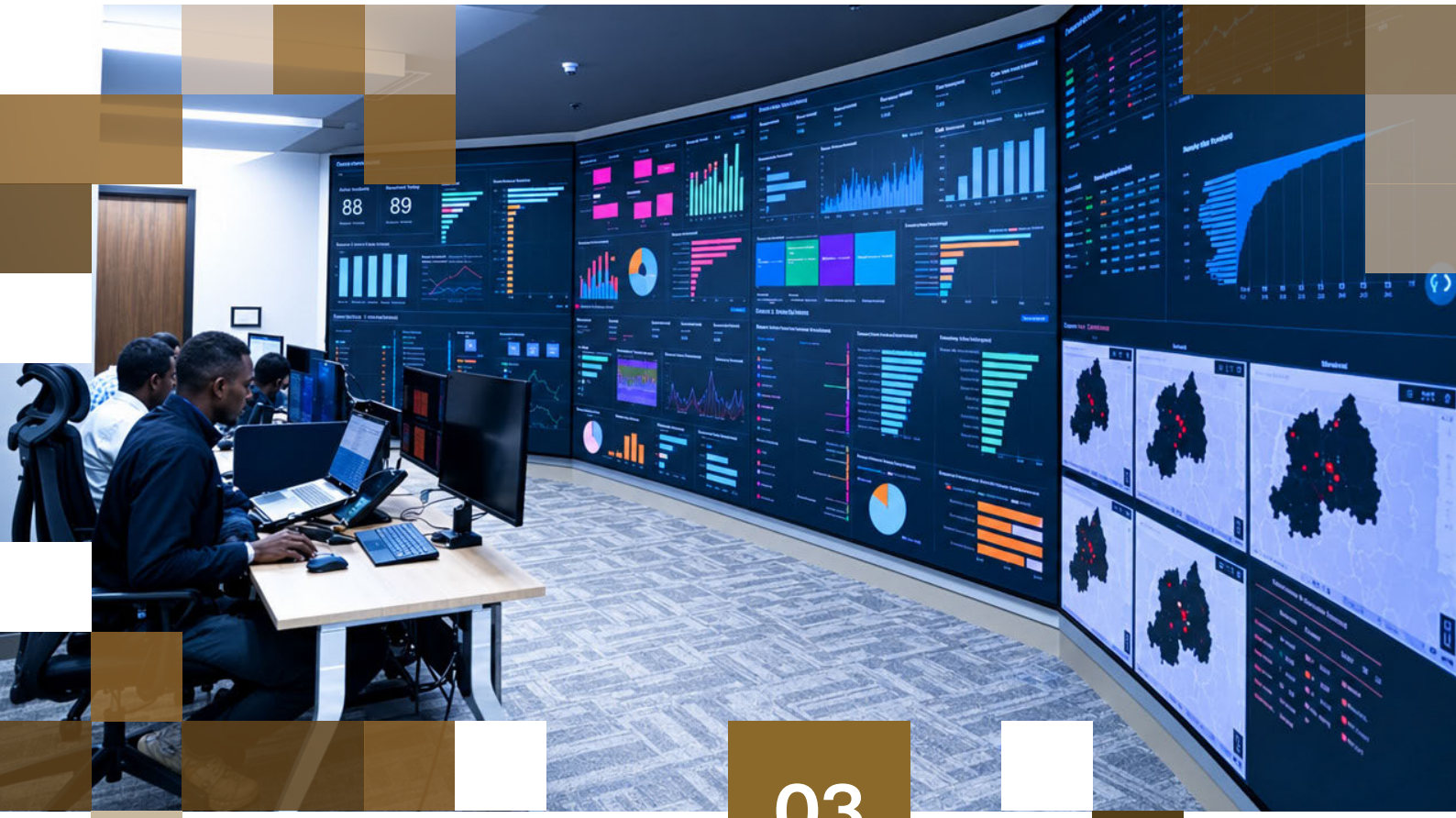
The Rwanda AI Scaling Hub is currently supporting AI use cases across **health, agriculture, and education**. Across these domains, the Hub is helping partners move beyond isolated pilots toward integrated solutions embedded within national systems and digital public infrastructure.

While still in its early phase, the Hub has already demonstrated value by improving coordination across stakeholders, reducing duplication, accelerating access to shared resources, and strengthening the evidence base required for policy adoption and long-term financing. Equally important, it is generating practical lessons on how to scale AI responsibly in resource-constrained contexts – insights that are informing both national decision-making and Rwanda's contributions to global AI governance dialogues.

Why This Case Matters

The Rwanda AI Scaling Hub represents a **new institutional model for responsible AI scaling in emerging economies**. Rather than focusing solely on innovation or regulation, it integrates policy, delivery, governance, and learning within a single platform designed to translate AI potential into public value. By embedding AI deployment within national priorities and public systems, while leveraging global partnerships and shared infrastructure, Rwanda is demonstrating how countries with limited resources can still lead in shaping inclusive and impactful AI futures.

As Rwanda continues to scale AI solutions nationally and share lessons regionally, the AI Scaling Hub offers a replicable reference for other countries seeking to move from fragmented AI experimentation to sustained, system-level impact.

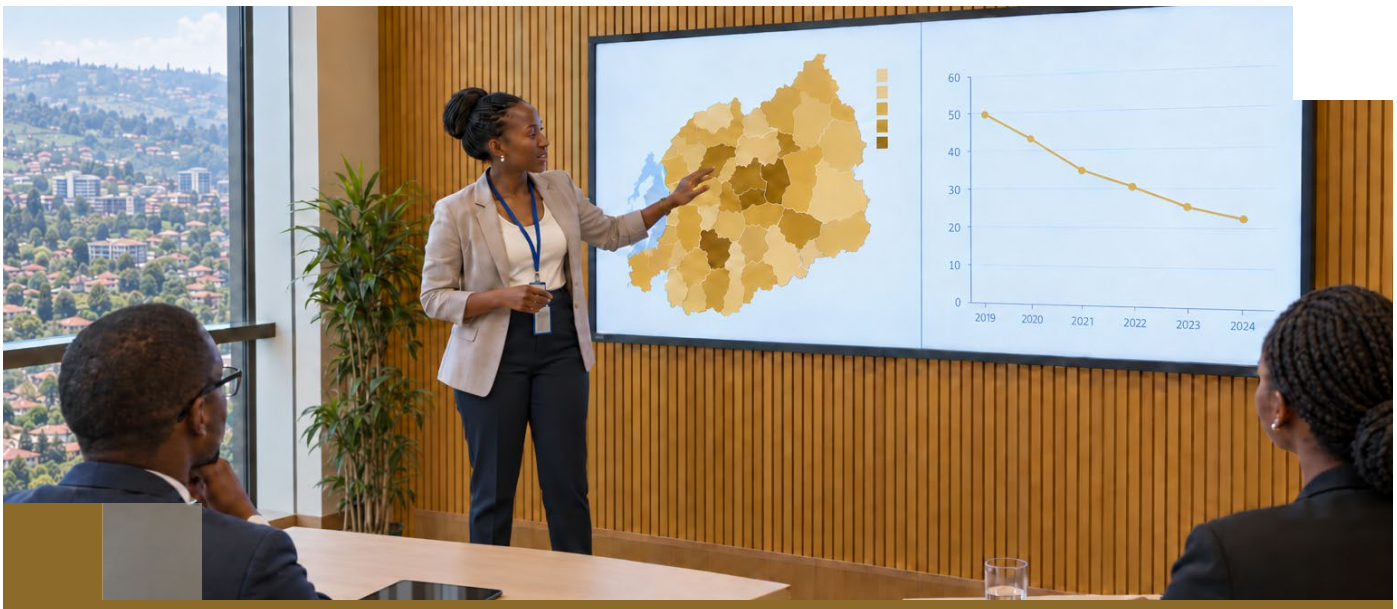


03

National Health Intelligence Center

Context and Challenge

Like many rapidly growing health systems, Rwanda faces the dual challenge of expanding access to care while improving quality, efficiency, and equity. Over time, the health sector accumulated large volumes of data across facilities, programmes, and institutions – ranging from routine health management information systems and electronic medical records to insurance, supply chain, workforce, and population-level data. However, much of this data remained fragmented, retrospectively analysed, and underutilised for real-time decision-making.



AI-generated image for illustrative purposes.

Historically, health sector planning and policy decisions were often driven by **static, aggregated reports based on outdated data**, with limited capacity for predictive analysis or system-wide optimisation. Data collection standards varied, systems were disconnected, and analytical capacity was unevenly distributed across institutions. As Rwanda's health system grew in scale and complexity, this model increasingly constrained the ability of leadership to respond quickly, target interventions effectively, and allocate resources optimally.

Addressing these challenges required more than digitisation alone. It called for a **central, intelligence-driven capability** that could integrate data across the full pyramid of healthcare, apply advanced analytics and artificial intelligence, and translate insights into actionable decisions at all levels of the system.

Establishing the National Health Intelligence Center

In response, Rwanda established the **National Health Intelligence Center (NHIC)** as a strategic unit under the Ministry of Health to serve as the country's central hub for health data integration, analytics, and decision intelligence. NHIC was designed to shift the health sector from retrospective reporting toward real-time, predictive, and AI-enabled decision-making, supporting leadership, programmes, and frontline delivery alike.[80]

NHIC sits at the centre of Rwanda's health data ecosystem, integrating data from across community, primary, secondary, and tertiary levels of care. This includes electronic medical records (notably *eBuzima*), health insurance and financing systems, supply chain and logistics platforms, workforce and infrastructure registries, routine HMIS and CRVS data, surveys, and patient-facing digital interfaces. A unique patient identifier enables linkage across systems, creating a longitudinal, system-wide view of health service delivery and outcomes.

Through this architecture, NHIC functions not only as a data warehouse but as a strategic centre for health intelligence, providing interactive dashboards, integrated performance metrics, and analytical tools that support planning, monitoring, and rapid response across the sector.

From Analytics to Artificial Intelligence

NHIC's evolution has been deliberately staged. Initial efforts focused on strengthening the underlying data warehouse and integrating data sources across programmes and institutions.

This was followed by the alignment of real-time programme indicators and performance frameworks, enabling consistent, standardised measurement across the health system. Building on this foundation, NHIC is now advancing toward **automated advanced analytics and predictive modelling**, embedding AI directly into health sector workflows.

Today, NHIC supports a growing portfolio of data science and system development projects, ranging from operational dashboards for leadership to predictive analytics that anticipate service demand, identify emerging risks, and inform targeted interventions. This transition reflects a broader shift in Rwanda's health system – from reactive decision-making to anticipatory, intelligence-driven governance.

The NHIC Health AI Lab: Institutionalising Responsible AI in Health

A major milestone in this evolution is the formal approval by the Ministry of Health of the **Health AI Lab under NHIC**. The NHIC Health AI Lab institutionalises artificial intelligence as a core capability within the health sector, rather than an ad hoc or externally driven innovation.

The AI Lab is designed around several core pillars: development and deployment of AI models tailored to national health priorities; rigorous evaluation and validation of AI systems before adoption; integration of AI tools into existing digital health platforms; and strong alignment with data governance, ethics, and regulatory requirements. By embedding these functions within NHIC, Rwanda ensures that AI in health is governed, tested, and scaled within a trusted public-sector framework.

The Lab also serves as a focal point for collaboration with academic institutions, technology partners, and global research networks. NHIC has made deliberate investments in human capital, with a growing multidisciplinary team that includes data scientists, engineers, public health experts, and researchers – many of whom are pursuing advanced training through partnerships with leading global universities. This approach builds long-term national capacity while anchoring AI innovation within public institutions.

Governance, Trust, and System Integration

Trust and accountability are central to NHIC's model. As a Ministry of Health–led institution, NHIC operates within established health governance structures and regulatory frameworks, ensuring alignment with national policies on data protection, patient safety, and ethical AI use. The AI Lab's evaluation and validation framework provides structured mechanisms to assess performance, bias, safety, and suitability of AI models before deployment, particularly in high-stakes clinical and operational contexts.

Crucially, NHIC is not a standalone analytics unit. Its outputs are embedded into decision-making processes across the health system – from national leadership and programme managers to facilities and community-level actors. This integration ensures that intelligence generated through AI and advanced analytics translates into concrete actions, such as resource reallocation, targeted outreach, supply chain optimisation, and improved service delivery.

Why This Case Matters

The NHIC represents a foundational digital and AI public good for Rwanda's health system. By combining integrated data infrastructure, advanced analytics, and an institutionalised Health AI Lab, NHIC enables Rwanda to move beyond isolated digital health tools towards a coherent, intelligence-driven health system.

This model is particularly significant for emerging economies. It demonstrates how AI in health can be scaled responsibly when anchored in strong public institutions, aligned with national priorities, and supported by rigorous governance and capacity building. As NHIC continues to mature, it not only strengthens Rwanda's health system resilience and efficiency but also provides a replicable reference for other countries seeking to harness AI for population health management and universal health coverage.



04

Global AI Summit on Africa

Context and Rationale

Artificial intelligence is emerging as one of the most powerful drivers of global economic transformation, with recent estimates suggesting that AI could contribute **up to USD 2.9 trillion to Africa's economy by 2030** if adopted strategically and inclusively. For a continent with the world's youngest population, rapidly growing digital penetration, and expanding entrepreneurial ecosystems, AI represents not only a technological opportunity but a critical lever for productivity growth, job creation, and structural transformation.



AI-generated image for illustrative purposes.

Yet despite this potential, Africa has historically played a limited role in shaping the global AI agenda. International debates on AI governance, standards, and investment have largely been driven by high-income economies with deep capital markets, extensive compute infrastructure, and mature research ecosystems. Without deliberate intervention, there is a risk that Africa's participation in the AI revolution could remain peripheral – focused on consumption rather than value creation, and shaped by external priorities rather than local development needs.

Rwanda recognised early that unlocking Africa's AI opportunity would require more than national strategies or isolated investments. It would demand a **continental platform for collective agenda-setting**, capable of aligning governments, innovators, researchers, civil society, and global partners around a shared vision for how AI can drive inclusive growth, workforce transformation, and ethical innovation at scale. This strategic imperative formed the basis for convening the **Global AI Summit on Africa** – not merely as a forum for dialogue, but as a catalyst to position Africa as an active shaper of the global AI economy and governance landscape.

Convening the Global AI Summit on Africa

In response, Rwanda hosted the **inaugural Global AI Summit on Africa** in Kigali from **3 to 4 April 2025**, in partnership with the World Economic Forum. Convened by the Centre for the Fourth Industrial Revolution Rwanda and the Ministry of ICT and Innovation, the Summit was held under the theme **"AI and Africa's Demographic Dividend: Reimagining Economic Opportunities for Africa's Workforce".**

The Summit brought together **over 2,100 participants from 97 countries**, including Heads of State, ministers, leaders of international organisations, global technology firms, African startups, researchers, and more than **400 youth participants**. This scale and diversity underscored Africa's readiness not only to participate in the global AI ecosystem but to help define its future.[81]

Structured around seven thematic pillars – **People, Infrastructure, Data, AI Models, AI Applications, Entrepreneurship, and Governance** – the Summit facilitated deep, cross-sector dialogue on how AI can be harnessed to address Africa's most pressing challenges while enhancing competitiveness and safeguarding societal values.

From Dialogue to Action: Shaping Outcomes

A defining feature of the Global AI Summit on Africa was its deliberate focus on **actionable outcomes**, rather than symbolic convening. Central among these was the **Africa AI Declaration**, endorsed by **54 African countries**, alongside the African Union and Smart Africa. The Declaration articulated a shared continental vision for responsibly scaling AI in ways that promote inclusive growth, innovation, and ethical governance.[82]

The Declaration set out seven priority commitments spanning talent development, data governance, compute infrastructure, market creation, financing, and governance coordination. Notably, it endorsed the establishment of an **Africa AI Council**, which was later launched by Smart Africa's Board of Directors at the sidelines of Transform Africa Summit 2025, reinforcing Africa's intent to engage collectively and strategically in global AI governance discussions.[83]

Beyond the Declaration, the Summit served as a launchpad for concrete initiatives and partnerships. These included the announcement of the **Rwanda AI Scaling Hub**, the launch of the **National Health Intelligence Center**, new investments in African language models and compute capacity, regulatory sandboxes for AI and digital services, and multi-country collaborations spanning health, education, trade, and innovation ecosystems.

A Platform for Partnerships and Ecosystem Building

The Summit also played a critical role in catalysing **cross-border partnerships and investment conversations**. Bilateral and multilateral engagements during the Summit advanced collaboration on digital infrastructure, skills development, research, and regional integration. The presence of global institutions, development partners, and technology companies alongside African governments and enterprises helped bridge gaps between policy, capital, and implementation.

Importantly, the Summit amplified **African perspectives on context-driven AI innovation**. Across plenary discussions, side events, and innovation showcases, a consistent message emerged: Africa's comparative advantage in AI lies not in replicating models developed elsewhere but in building AI systems that are localised, inclusive, and responsive to African realities. This framing challenged prevailing narratives of "catching up" and instead positioned Africa as a co-creator of new AI pathways.

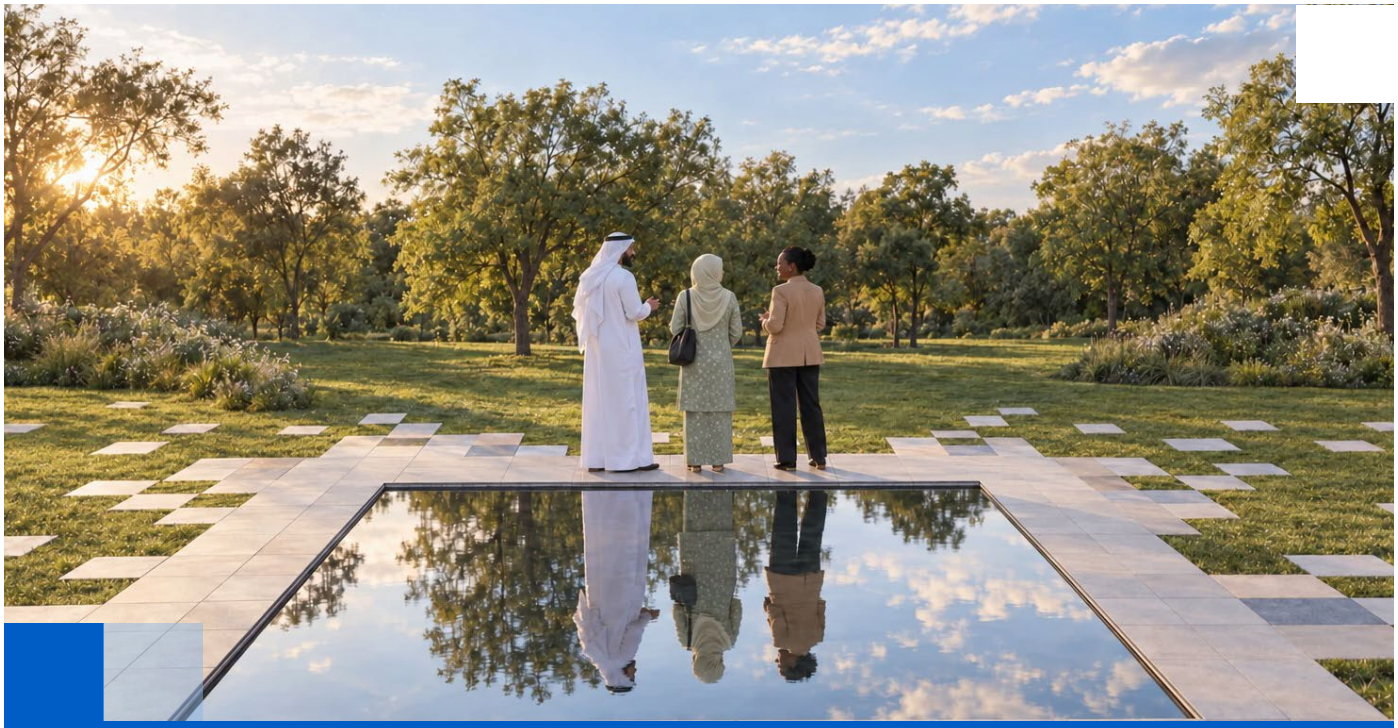
Why This Case Matters

The Global AI Summit on Africa represents a **turning point in Africa's engagement with the global AI agenda**. It demonstrated that African countries can move beyond fragmented participation toward collective agenda-setting, backed by concrete commitments and follow-through mechanisms.

For Rwanda, the Summit was not an isolated event, but part of a broader ecosystem strategy – linking global convening, national initiatives such as the AI Scaling Hub and NHIC, and sustained partnerships to translate vision into impact. As implementation of the Summit's outcomes continues, the Global AI Summit on Africa stands as a reference model for how emerging economies can shape global technology governance while advancing inclusive, development-oriented innovation.

Looking ahead, the Global AI Summit on Africa has been institutionalised as a **biennial convening**, with the next Summit scheduled for **2027**. This recurring cadence is designed to provide continuity, accountability, and momentum, allowing African countries and partners to track progress against commitments, showcase scaled use cases, and align emerging investments and governance efforts over time. By anchoring AI dialogue in a sustained, predictable platform, the Summit strengthens Africa's ability to collectively shape the global AI agenda while translating ambition into measurable impact for the continent.

Conclusions



AI-generated image for illustrative purposes.

The experiences of the UAE, Malaysia, and Rwanda clearly demonstrate that AI technologies are being actively designed, governed, and deployed across the Global South, with a level of ambition, institutional maturity, and ethical foresight that challenges outdated narratives of technological dependency. These country landscapes show not only widespread adoption but also growing excellence in shaping AI systems that respond to national priorities, development goals, and societal values.

A central lesson emerging from these cases is that successful AI deployment is inherently context-specific. While core technologies may be global, their effectiveness depends on how well they are adapted to local cultures, institutional capacities, economic structures, and social needs. The UAE's model of large-scale experimentation within a strong governance framework, Malaysia's human-centric and inclusive approach rooted in a multicultural society, and Rwanda's purpose-driven, policy-first strategy focused on development impact all illustrate that there is no one-size-fits-all pathway to AI transformation.

> Tailoring AI applications to local realities is not a constraint on innovation; it is a prerequisite for sustainable impact and public trust.

At the same time, the three countries underline that AI is a powerful amplifier of existing tools and systems. When paired with strong institutions, quality data, skilled talent, and clear public-sector leadership, AI can significantly enhance healthcare delivery, agricultural productivity, education outcomes, government efficiency, and environmental sustainability. However, these benefits do not emerge automatically. They require deliberate choices about governance, continuous review of use cases, and mechanisms to assess real-world outcomes. Without such safeguards, AI risks reinforcing inequalities, eroding trust, or delivering limited value despite technical sophistication.

Across all three landscapes, a shared emphasis on responsible and ethical AI governance stands out. Transparency, accountability, fairness, and human oversight are treated not as afterthoughts but as core design principles. Regulatory sandboxes, national ethical guidelines, public-sector leadership, and stakeholder engagement play a critical role in ensuring that innovation progresses alongside societal protection.

Finally, the collaboration between the UAE, Malaysia, and Rwanda C4IRs, formalised through the signing of a Memorandum of Understanding on the C4IR AI Fellowship Programme, highlights the growing importance of global cooperation in AI governance. By committing to the exchange of best practices, shared learning, and joint capacity-building, our three C4IRs recognise that collective progress is essential in a rapidly evolving technological landscape. This initiative, alongside similar partnerships, represents a practical pathway towards spreading AI in an ethical, inclusive, and sustainable manner.

> It reinforces the idea that the Global South is not only adopting AI but actively shaping its future, together.

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References

1 Stanford University Human-Centered Artificial Intelligence, 'Which Countries are Leading in AI?', https://hai.stanford.edu/ai-index/global-vibrancy-tool, accessed 2026.

2 The United Arab Emirates Government Platform, 'UAE Strategy for Artificial Intelligence', https://u.ae/en/about-the-uae/strategies-initiatives-and-awards/strategies-plans-and-visions/Ai/uae-strategy-for-artificial-intelligence, accessed 2026.

3 Emirates News Agency – WAM, 'Mohammed bin Rashid Announces Cabinet Reshuffle', https://www.wam.ae/en/article/hszr5zhp-mohammed-bin-rashid-announces-cabinet-reshuffle (2017).

4 Mohamed bin Zayed University of Artificial Intelligence, https://mbzuai.ac.ae/about/, accessed 2026.

5 Dubai Future Foundation, https://www.dubaifuture.ae/, accessed 2026.

6 UAE Centre for the Fourth Industrial Revolution, https://c4ir.ae/, accessed 2026.

7 *UAE Cabinet, "Under directives of UAE President and in world first: Mohammed bin Rashid reveals new UAE government framework to deploy Agentic AI across 50% of government sectors, operations within two years," 23 April 2026,* https://www.wam.ae/en/article/bzv0oj7-under-directives-uae-president-and-world-first.

8 *Emirates News Agency, "UAE Cabinet, chaired by Mohammed bin Rashid, approves roles, responsibilities framework for federal ministries and entities in implementing Agentic AI Project," 18 May 2026,* https://www.wam.ae/en/article/c09witr-uae-cabinet-chaired-mohammed-bin-rashid-approves.

9 *Government of Dubai Media Office, "Mohammed bin Rashid Al Maktoum attends national retreat on UAE Government's Agentic AI project," 20 May 2026,* https://mediaoffice.ae/en/news/2026/may/20-05/mohammed-bin-rashid-attends-national-retreat-showcasing-projects.

10 *Government of Dubai Media Office, "Mohammed bin Rashid Al Maktoum attends national retreat on UAE Government's Agentic AI project," 20 May 2026,* https://mediaoffice.ae/en/news/2026/may/20-05/mohammed-bin-rashid-attends-national-retreat-showcasing-projects.

11 *UAE Cabinet, "Mohammed bin Rashid approves establishing Artificial Intelligence and Data Authority," 14 June 2026,* https://uaecabinet.ae/en/news/mohammed-bin-rashid-approves-establishing-artificial-intelligence-and-data-authority.

12 *UAE Cabinet, "Mohammed bin Rashid approves establishing Artificial Intelligence and Data Authority," 14 June 2026,* https://uaecabinet.ae/en/news/mohammed-bin-rashid-approves-establishing-artificial-intelligence-and-data-authority.

13 The United Arab Emirates Government Platform, 'Artificial Intelligence In Government Policies', https://u.ae/en/about-the-uae/digital-uae/digital-technology/artificial-intelligence/artificial-intelligence-in-government-policies, accessed 2026.

14 Emirates News Agency – WAM, 'Artificial Intelligence Programme Kicks Off Its Sixth Cohort in Partnership with University of Birmingham', https://www.wam.ae/en/article/bjvaigw-artificial-intelligence-programme-kicks-off-its (2025).

15 The United Arab Emirates Government Platform, 'Chief Artificial Intelligence Officer (CAIO)', https://u.ae/en/about-the-uae/digital-uae/whole-of-government-approach/Chief-Artificial-Intelligence-Officer-CAIO, accessed 2026.

16 Government of Dubai Media Office, '50 UAE Chief AI Officers Embark on Visit to Major US Technology Firms', https://mediaoffice.ae/en/news/2025/september/14-09/50-uae-chief-ai-officers-embark-on-visit-to-major-us-technology-firms (2025).

17 Emirates News Agency – WAM, 'UAE Government Launched Chief AI Officers' Training Programme to Enhance Future Tech Leadership', https://www.wam.ae/en/article/bjyv3xh-uae-government-launches-chief-officers%E2%80%99-training (2026).

18 Federal Authority for Government Human Resources, https://www.fahr.gov.ae/en/initiatives/hr-ai-agent/, accessed 2026.

19 Federal Authority for Government Human Resources, 'UAE Government Launches HR AI Agent', https://www.fahr.gov.ae/en/news/uae-government-launches-hr-ai-agent/ (2025).

20 United Arab Emirates Ministry of Foreign Affairs, 'H.H. Sheikh Abdullah bin Zayed Launches Smart Mission Project', https://www.mofa.gov.ae/en/mediahub/news/2023/3/10/10-03-2023-uae-minister (2023).

21 United Arab Emirates Ministry of Foreign Affairs, 'The UAE Ministry of Foreign Affairs Leads Digital Innovation and Rapid Response in 2024: A Global Model for Citizen Care Overseas', https://www.mofa.gov.ae/en/mediahub/news/2025/1/7/7-1-2025-uae (2025).

22 Dubai Future Foundation, Insights 'Hamdan bin Mohammed Launches Dubai Centre for Artificial Intelligence to Accelerate AI Adoption in Government, https://www.dubaifuture.ae/latest-news/hamdan-bin-mohammed-launches-dubai-centre-for-artificial-intelligence-to-accelerate-ai-adoption-in-government/ (2023).

23 Dubai AI Seal, https://dub.ai/en/ai-seal/, accessed 2026.

24 Protocol Department – Dubai, 'Hamdan bin Mohammed Appoints 22 Chief AI Officers across Government Entities in Dubai', https://www.protocol.dubai.ae/en/media-listing/news-events/hamdan-bin-mohammed-appoints-22-chief-ai-officers-across-government-entities-in-dubai/ (2024).

25 One Million Prompters, https://dub.ai/en/omp/, accessed 2026.

26 G42, 'Meet Jais, the World's most Advanced Arabic LLM Open Sourced by G42's Inception', https://www.g42.ai/resources/news/meet-jais-worlds-most-advanced-arabic-llm-open-sourced-g42s-inception (2024).

27 Technology Innovation Institute, 'Falcon Arabic: The Future of AI in the Arabic Language', https://falconllm.tii.ae/falcon-arabic.html, accessed 2026.

28 The United Arab Emirates Government Platform, 'AI Resources', https://u.ae/en/about-the-uae/digital-uae/digital-technology/artificial-intelligence/ai-resources, accessed 2026.

29 Malaysia Digital Economy Blueprint (MyDIGITAL), https://www.mydigital.gov.my/publications/#pdf-malaysia-digital-economy-blueprint/1/, accessed 2026.

30 Malaysia Digital Action Plan 2030 (MD2030), https://www.mydigital.gov.my/publications/#pdf-dokumen-utama-pelan-tindakan-malaysia-digital-2030/1/, accessed 2026.

31 Malaysia National Artificial Intelligence Roadmap 2021–2025, https://mastic.mosti.gov.my/publication/artificial-intelligence-roadmap-2021-2025, accessed 2026.

32 MYCentre4IR, https://www.centre4ir.my/about, accessed 2026.

33 National AI Office, https://ai.gov.my/faq/about-naio, accessed 2026.

34 Thirteenth Malaysia Plan (RMK-13) 2026–2030, https://rmk13.ekonomi.gov.my/wp-content/uploads/2025/09/Executive_Summary_Thirteenth_Malaysia_Plan.pdf, accessed 2026.

35 Malaysia Digital Economy Corporation (MDEC), https://www.mdec.my/, accessed 2026.

36 MyMahir Future Skills Initiative, https://www.mymahir.my/home, accessed 2026.

37 National Data Sharing Policy, https://www.komunikasi.gov.my/en/kkmm-media/penerbitan/dasar-perkongsian-data-nasional, accessed 2026.

38 National Guidelines on Artificial Intelligence Governance and Ethics, https://mastic.mosti.gov.my/publication/the-national-guidelines-on-ai-governance-ethics, accessed 2026.

39 YTL AI Labs, ILMU Technical Report, https://cdn.prod.website-files.com/6732b4653312fe07f9531a17/689a8e962b44b57638437dbf_ILMU_Technical-Report_20250812-Cmprs.pdf, accessed 2026.

40 YTL AI Labs, ILMU Technical Report, https://cdn.prod.website-files.com/6732b4653312fe07f9531a17/689a8e962b44b57638437dbf_ILMU_Technical-Report_20250812-Cmprs.pdf, accessed 2026.

41 YTL AI Labs, 'ILMU: Malaysia's AI', https://www.ytlailabs.com/. accessed 2026.

42 YTL AI Labs, ILMU Technical Report, https://cdn.prod.website-files.com/6732b4653312fe07f9531a17/689a8e962b44b57638437dbf_ILMU_Technical-Report_20250812-Cmprs.pdf, accessed 2026.

43 YTL Power International Berhad, 'YTL AI Labs Releases the First MalayMMLU', https://www.ytlpowerinternational.com/press-releases/ytl-ai-labs-releases-the-first-malaymmlu/, accessed 2026.

44 YTL AI Labs, ILMU Technical Report, https://cdn.prod.website-files.com/6732b4653312fe07f9531a17/689a8e962b44b57638437dbf_ILMU_Technical-Report_20250812-Cmprs.pdf, accessed 2026.

45 Wholly Made in Malaysia by Malaysians for Malaysians, https://www.ilmu.ai/assets/ilmu-technical-report.pdf, accessed 2026.

46 FlytBase, 'TNB Warehouse Asset Monitoring – Autonomous Drones in Malaysia', https://www.flytbase.com/case-studies/tnb-warehouse-asset-monitoring-autonomous-drones-malaysia, accessed 2026.

47 FlytBase, 'TNB Warehouse Asset Monitoring – Autonomous Drones in Malaysia', https://www.flytbase.com/case-studies/tnb-warehouse-asset-monitoring-autonomous-drones-malaysia, accessed 2026.

48 FlytBase, 'TNB Warehouse Asset Monitoring – Autonomous Drones in Malaysia', https://www.flytbase.com/case-studies/tnb-warehouse-asset-monitoring-autonomous-drones-malaysia, accessed 2026.

49 The Star Online, 'SARA Is Malaysia's First Fashion Artificial Intelligence', https://www.thestar.com.my/business/business-news/2019/07/10/sara-is-launched-as-malaysias-first-fashion-artificial-intelligence, accessed 2026.

50 Media Writing Focus, 'Press Release: SARATIX, SARA and CUSTLR', https://mediawritingfocus.wordpress.com/category/press-release, accessed 2026.

51 Masri bin Abdul Lasi et al., 'Marketing Technologies and its Effect towards Online Purchasing Behaviour of Fashion Consumers in Malaysia', https://www.researchgate.net/publication/357157459_Marketing_Technologies_and_its_Effect_towards_Online_Purchasing_Behaviour_of_Fashion_Consumers_in_Malaysia, accessed 2026.

52 Bernama, 'SARA Is Launched as Malaysia's First Fashion Artificial Intelligence', https://www.bernama.com/en/news.php?id=1743967, accessed 2026.

53 International Symposium on Mathematical and Computational Oncology, 'Fine-Tuning Deep Learning Architectures for Early Detection of Oral Cancer', https://link.springer.com/chapter/10.1007/978-3-030-64511-3_3, accessed 2026.

54 CRMY Technologies, 'MeMoSA®: AI-Powered Early Oral Cancer Screening', https://ctsb.my/memosa/, accessed 2026.

55 IEEE Access, 'Automated Detection and Classification of Oral Lesions Using Deep Learning for Early Detection of Oral Cancer', https://ieeexplore.ieee.org/document/9144177 (2020), accessed 2026.

56 International Conference on Computer Analysis of Images and Patterns, 'Clinically Guided Trainable Soft Attention for Early Detection of Oral Cancer', https://doi.org/10.1007/978-3-030-89128-2_22 (2021), accessed 2026.

57 Scientific Data, 'MeMoSA dataset: A Multi-Country Collection of over 30,000 Oral Mucosa Images with Clinically Labelled Lesions', https://www.nature.com/articles/s41597-026-06998-7.pdf, accessed 2026.

58 Oral Diseases, 'Image Collection and Annotation Platforms to Establish a Multi-Source Database of Oral Lesions', https://onlinelibrary.wiley.com/doi/10.1111/odi.14206 (2022), accessed 2026.

59 Scientific Data, 'MeMoSA dataset: A Multi-Country Collection of over 30,000 Oral Mucosa Images with Clinically Labelled Lesions', https://www.nature.com/articles/s41597-026-06998-7.pdf, accessed 2026.

60 Cancer Research Malaysia, https://www.cancerresearch.my/, accessed 2026.

61 Cancer Research Malaysia, https://www.cancerresearch.my/, accessed 2026.

62 Senthilmani Rajendran et. al., 'Accelerated Implementation of Teleconsultation Services for the Monitoring of Oral Potentially Malignant Disorders as a Result of the COVID-19 Pandemic', https://pubmed.ncbi.nlm.nih.gov/35176655/, accessed 2026.

63 Senthilmani Rajendran et. al., 'Accelerated Implementation of Teleconsultation Services for the Monitoring of Oral Potentially Malignant Disorders as a Result of the COVID-19 Pandemic', https://pubmed.ncbi.nlm.nih.gov/35176655/, accessed 2026.

64 Sivaraj Raman et. al., 'Provider Cost of Treating Oral Potentially Malignant Disorders and Oral Cancer in Malaysian Public Hospitals', https://pubmed.ncbi.nlm.nih.gov/33984051/, accessed 2026.

65 National Institute of Standards and Technology, 'Face Recognition Vendor Test (FRVT) Part 11: Demographic Effects', https://pages.nist.gov/frvt/html/frvt11.html, accessed 2026.

66 WISE AI Sdn. Bhd., 'WISE EKYC', https://www.mysti.gov.my/product/wise-ekyc, accessed 2026.

67 WISE AI Sdn Bhd., 'eKYC Malaysian Identity Card' [unpublished image], provided directly to MYCentre4IR via email, accessed 2026.

68 Ministry of ICT and Innovation, Republic of Rwanda, 'The National AI Policy', https://www.minict.gov.rw/fileadmin/user_upload/minict_user_upload/Documents/Policies/Artificial_Intelligence_Policy.pdf, accessed 2026.

69 The Future Society, 'Cabinet of Rwanda Approves National AI Policy', https://thefuturesociety.org/cabinet-of-rwanda-approves-national-ai-policy/ (2023).

70 Centre for the Fourth Industrial Revolution Rwanda, https://c4ir.rw/, accessed 2026.

71 OECD.AI, 'The National AI Policy — Rwanda', https://oecd.ai/en/dashboards/policy-initiatives/the-national-ai-policy, accessed 2026.

72 Centre for the Fourth Industrial Revolution Rwanda, 'Rwanda AI Scaling Hub', https://c4ir.rw/, accessed 2026.

73 Centre for the Fourth Industrial Revolution Rwanda / World Economic Forum, 'Global AI Summit on Africa', https://www.globalaisummitafrica.com/, accessed 2026.

74 Africa Declaration on Artificial Intelligence, https://aiexpoafrica.com/africa-declaration-on-artificial-intelligence/ (2025).

75 Smart Africa, 'Announcing the Establishment of the Africa AI Council', https://smartafrica.org/announcing-the-establishment-of-the-africa-ai-council-to-propel-continental-competitiveness-through-global-collaboration/, accessed 2026.

76 Infocomm Media Development Authority (Singapore), 'First AI Playbook for Small States to Shape Inclusive Global AI Discourse', https://www.imda.gov.sg/resources/press-releases-factsheets-and-speeches/press-releases/2024/ai-playbook-for-small-states (2024).

77 Ministry of Agriculture and Animal Resources (MINAGRI), Republic of Rwanda, https://www.minagri.gov.rw/updates/news-details/rwandas-agriculture-sector-transformation-journey-over-the-last-29-years, accessed 2026.

78 Fifth Strategic Plan Agricultural Transformation PSTA 5, 'AI-Enabled Agricultural Advisory', https://www.minagri.gov.rw/fileadmin/user_upload/Minagri/Publications/Policies_and_strategies/PSTA_5_Fulltext__Final.pdf, accessed 2026.

79 Centre for the Fourth Industrial Revolution Rwanda, 'Rwanda AI Scaling Hub', https://c4ir.rw/, accessed 2026.

80 Ministry of Health, Republic of Rwanda, 'National Health Intelligence Center (NHIC)', https://www.moh.gov.rw/sites-apps/nhic, accessed 2026.

81 Centre for the Fourth Industrial Revolution Rwanda / World Economic Forum, 'Global AI Summit on Africa', https://www.globalaisummitafrica.com/, accessed 2026.

82 Africa Declaration on Artificial Intelligence, https://aiexpoafrica.com/africa-declaration-on-artificial-intelligence/ (2025).

83 Smart Africa, 'Announcing the Establishment of the Africa AI Council', https://smartafrica.org/announcing-the-establishment-of-the-africa-ai-council-to-propel-continental-competitiveness-through-global-collaboration/, accessed 2026.