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AI Sprinters

Capturing the economic opportunity of AI in emerging markets

A Digital Sprinters report

Executive summary

Artificial Intelligence (AI) has significant potential to drive economic growth and unleash new forms of economic opportunity in emerging markets.

Through its capacity to assist, complement, empower, and inspire, AI offers new ways to address some of the world's most pressing economic challenges and presents a once-in-a-generation opportunity to improve the ways people live, work, and learn across all sectors and in all countries.

While some analysts anticipate that emerging markets will adopt AI more slowly and benefit from it less over the next decade than wealthier countries, there are good reasons to believe these markets can exceed these expectations if they have the right enablers in place. This potential is reflected in recent surveys that show that populations in emerging markets are more optimistic about AI's economic impact than those in Europe or the United States (US): over 71% of those surveyed in emerging markets said that AI already has a *positive impact* on access to information, health, education and work (compared with less than 56% in Europe and less than 51% in the US).

Our report demonstrates AI's transformative potential within emerging markets. Through examining nine diverse stakeholder groups, from farmers to digital startups, we provide real-life case studies that illuminate how AI can drive progress. Our findings suggest that emerging markets can realize significant benefits from strategically adopting AI technologies across various sectors.

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From Digital Sprinters to AI Sprinters

The Digital Sprinters report published by Google in 2020 established a framework for policymakers to harness the economic potential of digital technologies. That framework is even more relevant today as countries seek to participate in the AI transformation. Becoming an *AI Sprinter* — a country that harnesses AI to accelerate economic development — requires both widespread AI adoption and adaptation to local needs. A robust digital foundation is crucial, and the four *Digital Sprinters* pillars offer a roadmap for building it:

- Infrastructure:
  Investing in high-speed, reliable digital connectivity and secure, environmentally sustainable data centers which together form the backbone of AI development and deployment.

- People:
  Preparing people across all communities for the AI-driven economy through education and skills development.

- Technological innovation:
  Promoting the research, development, and adoption of AI technologies to address local challenges.

- Enabling policies:
  Advancing policies that foster a thriving AI ecosystem to help AI researchers and innovators convert ideas and data into new discoveries, products, and services.

Four game changers could accelerate AI integration in emerging markets: Each of these pillars entails a broad range of public-private actions, but this report focuses on four game changing ideas:

Infrastructure:
100% Adoption of cloud-first policies.

Cloud computing is the gateway through which businesses and governments can harness the power of AI. It also provides a host of benefits for companies seeking to compete in the global economy by democratizing access to cutting-edge technologies. In addition to boosting government efficiency and improving service delivery, "Cloud First" initiatives that prioritize the adoption of cloud solutions over traditional IT systems can catalyze private sector use of AI tools on the cloud by providing a signal to domestic firms.

People:
National AI skill initiatives.

To fully leverage the potential of AI, governments must invest in AI education and training. Building an AI-ready workforce calls for a collaborative, society-wide effort involving government, the private sector, and educational institutions aimed at building three levels of AI fluency: *AI Learners* with basic AI literacy; *AI Implementers*, who use and adapt AI tools at work; and *AI Innovators*, who can help to shape how the technology evolves using deep technical expertise.

Technological innovation:
Modernizing national data systems for the AI era.

High-quality datasets are essential for training effective AI models that minimize bias and can be tailored to meet specific needs. Despite the explosive growth of data, many countries lack the policies, institutions, and frameworks needed to unlock its full potential. To realize the benefits of AI, governments should prioritize initiatives that encourage data sharing across agencies, embrace open data principles, facilitate trusted cross-border data flows, and invest in a robust data infrastructure.

Enabling policies:
Promoting innovation & deployment through enabling regulation.

Policymakers must focus not only on the harms they want to avoid, but on the potential they want to achieve. Four universal policies that policymakers can pursue to ensure AI is widely and inclusively deployed are (1) ensure that regulators are taking a risk-based and proportional approach to regulation of AI products and services; (2) maintain privacy and copyright frameworks that enable use of publicly available information while respecting legitimate rights; (3) support and contribute to the development of international technical standards for AI, and and promote recognition of these standards by industry and regulators; and (4) adopt and implement a national AI strategy focused on harnessing AI to achieve major public objectives.

Emerging markets are a diverse group of countries at different stages on their digital transformation journey. While some of the initiatives proposed here may seem ambitious for those at earlier stages, they may serve as useful goals for governments to target as their digital economies evolve. Regional institutions and multilateral development banks have a crucial role to play in providing the necessary support and expertise to ensure no country is left behind in achieving these long-term objectives.

Realizing AI's potential requires a new mindset that seeks to drive progress through responsible, inclusive, and collaborative AI development. By strengthening digital infrastructure, building essential skills, leveraging data to solve local challenges, and fostering a policy environment that fuels innovation, these initiatives lay the groundwork for emerging markets to thrive in the AI era, ensuring that the benefits of this remarkable technology are shared widely.

01 Foreward: The AI opportunity for emerging markets

The combined forces of technology and trade have helped to lift over one billion people out of extreme poverty in the last thirty years — a development unparallelled in human history.

Today, driven by recent advancements in artificial intelligence (AI), we stand at the threshold of a new technological era that could have a similarly profound impact. According to Goldman Sachs, AI could boost global labor productivity by 1.4% and increase global GDP by 7% over a ten year period.

AI has all the hallmarks of a general-purpose technology, including broad applicability, large potential spillovers, and a capacity to continuously improve. As such, it presents a once-in-a-generation opportunity to improve the ways people live, work, and learn across all sectors and in all countries.

Some analysts anticipate that emerging markets will adopt AI more slowly and benefit from it less over the next decade than wealthier countries since a smaller share of their workers are engaged in jobs that are amenable to AI augmentation. But there are good reasons to believe these markets can exceed these expectations if they have the right enablers in place. This potential is reflected in recent surveys that show that populations in emerging markets are more optimistic about AI's economic impact than those in Europe or the US.

There are several factors that could enable the rapid adoption of AI in emerging markets:

1. Young, digitally savvy population.

   Emerging markets tend to be young (e.g. lower- and middle-income countries have a median age of 26 while higher-income countries tend to be around 40) and increasingly well-connected and tech savvy. AI is the first major technology to be launched at a time when more internet and mobile phone users live in low- and lower-middle income countries than in rich ones. And while more needs to be done to connect the roughly 33% of the world that remains unconnected, the massive strides made in almost doubling global internet access over the last decade have created digitally native populations in many emerging markets well positioned to adopt and innovate with new AI tools.

2. An opportunity to overcome legacy infrastructure and regulatory gaps.

   Emerging markets tend to be less burdened by legacy infrastructure and regulations that can impede the ability to adopt, experiment, and iterate with AI technologies — making it potentially easier to leapfrog or at least accelerate stages of technology deployment. Just as mobile money spread in areas with limited traditional banking infrastructure (including in sub-Saharan Africa where 33% of adults had a mobile money account by 2021), AI has the potential to broaden the reach of essential services that have been difficult to scale in the past due to lack of resources and expertise.

3. Low barriers to usage.

   Generative AI and large language models (LLMs) also have inherent features that could help facilitate widespread adoption. Crucially, the ability for users to interact with computers using ordinary

language breaks down the barrier of technical expertise, making AI accessible to a broader population. At the same time, AI applications like Google Translate, also available offline, allow users to translate into and out of an increasing number of languages, breaking down language barriers and increasing opportunities for synthesizing local and global knowledge.

4. AI's inherent flexibility.

   AI's adaptability allows it to be trained on a variety of tasks and problems, leading to remarkable proficiency in diverse fields. In this way, AI can democratize access to expertise previously limited to those with more experience or specialized training. Taken together, these features give AI more extensive potential uses than previous digital technologies. And AI foundation models like Gemini Nano that are developed to run directly on a mobile device could further expand access to knowledge and AI-powered capabilities.

AI can boost development in myriad ways

Despite their diversity, emerging markets often confront a common set of challenges distinct from those faced by advanced economies. These include uneven access to essential public services such as healthcare and education, a lack of expertise in advanced technologies, and the urgent need to generate employment for growing populations. Furthermore, emerging markets disproportionately experience the adverse effects of climate change.

AI offers a potentially transformative tool for emerging markets to help meet these complex challenges and accelerate global efforts to achieve each of the UN's 17 Sustainable Development Goals. Where limitations in resources and specialized expertise hinder the delivery of public services like health and education, AI promises to amplify the capacity of existing workforces by absorbing, adapting, and disseminating expert knowledge. For instance, in Kenya, AI-enhanced ultrasound devices simplify diagnostics and provide crucial health information, allowing individuals without deep medical training to offer timely care using handheld probes.

As emerging markets bear the brunt of climate change and related natural disasters, they have much to gain from AI-driven solutions that improve disaster prediction, preparedness, and response systems, including wildfire detection. Crucially, AI's impact extends beyond crisis management. A recent study suggests AI could slash global greenhouse gas (GHG) emissions by 5-10% by 2030 — a reduction matching the European Union's annual output — potentially revitalizing green economies worldwide.

AI's economic potential hinges on its ability to accelerate the process of innovation and enhance labor productivity. By analyzing vast datasets, identifying patterns invisible to humans, and simulating complex scenarios, AI can drive breakthroughs in fields ranging from medicine to materials science (see Department of Energy, Wang et al, Nature, and The Royal Society). These discoveries can help lay the groundwork for the development of new products, processes, and entire industries that fuel economic growth and improve human welfare.

Beyond fueling cutting-edge research, AI also offers practical benefits by automating and streamlining tasks, leading to significant efficiency gains across numerous sectors regardless of a country's level of development. While early research on AI's economic impact has centered on knowledge-based work in advanced economies, its potential to increase productivity appears to be far-reaching. AI tools can benefit a wide range of occupations (e.g. developers, call center employees, financial analysts and radiologists), and business functions (e.g. sales, logistics, and operations) around the world.

AI's impact on productivity will unfold differently in emerging markets compared to advanced economies. Due to the concentration of their workforce in sectors like agriculture, which are less prone to automation, and fewer knowledge workers, emerging markets are likely less prone to AI-driven job disruptions. At the same time, IMF research suggests that these same factors could hinder AI adoption and the associated productivity surge.

As a consequence, in most emerging markets concerns about potential job disruption are likely to be superseded by the strategic imperative of leveraging AI. As economist Daniel Bjorkegren notes, for lower income countries, "the big question is not how AI will affect millions of employed people but how will billions of people employ AI."

In the past, harnessing the power of cutting-edge technology for productivity gains required substantial investment or in-house technical expertise. But with the increasing accessibility of cloud-based AI solutions, companies in all sectors and of virtually all sizes can now tap into the same advanced production, distribution, and market analysis tools once reserved for the world's largest corporations. For that reason, the integration of AI is likely to become a strategic imperative for firms across the globe seeking to establish a competitive advantage.

The corollary to AI's immense economic potential is the risk companies and countries face in falling behind more innovative competitors if they lag in adoption — which is why a degree of urgency is needed on the part of policymakers. Uneven adoption of AI could limit the potential for broad productivity gains and stifle economic growth. To ensure widespread benefits, policymakers should work to prepare all sectors, especially traditional industries, to adopt productivity-enhancing AI. This means investing in digital infrastructure, building essential skills, using data to address local needs, and creating policies that drive innovation.

As we have learned from prior waves of technology, achieving AI's promised benefits will not happen automatically. It requires responsible innovation and an affirmative policy agenda that fosters AI's most productive uses. It will also require collaboration between governments, industry, civil society, and academia on a global scale. Crucially, emerging markets must play an active role in shaping AI's development to ensure it aligns with their unique needs and priorities.

We next explore how AI applications can unlock new opportunities for nine stakeholder groups that play an important role in driving the growth of emerging markets.

02 From empowering farmers to supercharging startups: Leveraging AI in emerging markets

AI has the potential to make industries more competitive, boost productivity, and propel economic growth in emerging markets. Businesses and workers alike stand to benefit from AI's capacity to foster innovation, streamline operations, and create new market opportunities.

Below we examine AI's potential impact, looking across nine economic stakeholder groups. Governments have a great role to play in driving AI adoption. From small-scale farmers optimizing crop yields with AI-driven insights to manufacturers boosting efficiency through AI-enabled predictive maintenance, the technology demonstrates remarkable versatility. AI can empower content creators to overcome language hurdles to reach broader audiences, while simultaneously acting as a catalyst for innovation among tech startups striving for a competitive edge. AI's ability to adapt across diverse industries underscores its broad potential as a force for economic growth.

Table 1 provides a snapshot of the unique benefits that AI can provide across different sectors. The rest of this section charts these benefits in more depth for each sector, outlining specific use cases that enable growth and some success stories of applications available today.

Table 1
The benefits of AI for a selection of nine stakeholder groups

Stakeholders	Examples of Benefits and Uses			
	Enhancing innovation and creativity	Automating repetitive tasks and improving productivity	Optimizing supply chains and non-repetitive operations	Expanding into new markets and customers
Government Responsible for meeting citizens' needs and steering the economy	Easing interagency cooperation to serve citizens Gaining new insights using AI to shape public services offerings and inform national priorities in education, healthcare, and climate	Surfacing relevant information Supporting citizenry with navigating the government services	Reducing wait time for government services, eliminate the need for in-person visits to government offices	Personalizing government services for different categories of population
Startups Drivers of innovation and job creation	Leveraging generative AI for product ideation and innovation	Running simulations for product testing	Automating customer- and investor-related engagements	Analyzing customer data for new market expansion
SMBs Largest group of emplyers in most economies	Adopting new software solutions aided by AI-powered, user-friendly tools that require no or little coding expertise	Streamlining workflows and improving analysis with AI tools in word processor and spreadsheet applications	Analyzing supply chain data to optimize processes and reduce associated costs	Receiving insight on users in new markets to personalize product offerings based on target markets
Exporters Strong drivers of economic growth for emerging markets	Generating novel routing solutions to address logistical inefficiencies	Automating filling of trade-related administration papers	Automating responses to queries on delivery options or delivery status of goods	Forecasting deman trends for new markets to drive down inventory costs
Content creation Up-and-coming market movers	Lowering the entry barriers for newcomers with AI-generated content and imagery	Automating tasks like editing, scheduling, and transcribing	Simplifying marketing and planning content calendar	Providing translation support for new market expansion
Agriculture Contributes largest share of employment in most emerging markets	Developing dynamic solutions in response to unprecedented climate patterns	Automating soil and weather monitoring	Generating actionable insights on crop management	Identifying new crops and more climate-resilient supply
Natural resources Cornerstone of economic growth	Analyzing geographical data to discover new deposits, minimize investment and biodiversity impacts Boosting efficiency of existing wells/deposits	Automating manual tasks with smart machinery	Monitoring equipment failures and flagging supply chain disruptions	Forecasting demand trends for new markets to develop resilient supply chains
Manufacturing Key contributor of growth and poverty reduction	Developing solutions for circular economy to minimize waste and create new products for local markets	Offering rapid accurate quality inspections and predictive maintenance to increase lifespan of assets	Managing internal resourcing needs	Analyzing market data, customer feedback, and competitor offerings to develop resilient supply chains and improve products
Services The fastest growing sector in the past few decades	Improving analysis of customer data for service innovation	Assisting with capital and risk management	Simplifying the payment and service delivery for the customers	Combining AI-enabled analytics with digital marketing tools to market offerings

Government: Streamlining Services and Empowering Citizens with AI

AI has the potential to revolutionize the way the public sector operates, serves its missions, and supports its citizens. By improving service delivery, administrative efficiency, and the quality of decision-making, AI can help governments in emerging markets advance their goals in critical fields like education, health, and transportation at a greater scale and lower cost. While there are upfront investments in digitalizing government systems and building the expertise needed to use AI, these efforts can yield significant long-term cost savings.

Citizens want governments to embrace innovation. Globally, 8 in 10 (80%) people surveyed in the Google-Ipsos Global Survey believe that using AI to streamline government operations is important. By adopting AI, governments can not only improve service delivery but also build public trust in the technology, help establish standards for its safe and beneficial use, and promote innovation in domestic firms.

Governments around the world are adopting AI to meet a wide variety of needs and provide services more efficiently. For example:

- AI-enabled chatbots can transform citizen interactions with the government by offering 24/7 availability and seamless multilingual communication. Governments at all levels, from national to local, are embracing this technology. For instance, the city of Santana de Parnaíba in Brazil uses its chatbot "Anna" to handle citizen inquiries on 400 topics, from tax services to new decrees and public works. Similarly, the government of Israel's recently launched chatbot offers instant access to information across various agencies. These always-on services and others like them empower citizens by allowing them to interact with the government on their own terms, in their preferred language, and at their convenience.

- AI and cloud technologies offer powerful tools to drive efficiency and productivity for public-sector employees, as well as to gain insights using AI. Collaborative platforms like Google Workspace facilitate seamless intra- and inter-agency collaboration, improving communication, accountability, and overall workflow. This transformation is exemplified by Colombia's Social Security Management Unit (UGPP). By adopting cloud solutions and applying data analytics powered by AI, the UGPP significantly boosted team productivity and allowed citizens to access their Social Security contribution data digitally within minutes rather than days. In the US, state and local agencies leverage AI to gain insights and identify potentially fraudulent unemployment claims, while processing the remaining claims in a more efficient manner.

- AI can help emerging markets governments to meet complex challenges of achieving the UN's Sustainable Development Goals. AI-powered products such as Google for Education Workspace can help transform learning and teaching, equipping both teachers and students with the knowledge, mindsets, and skill sets required for the AI age, while preserving local lifestyle. Google's strategic partnership with the Mongolian Government enables every child and educator to access online learning devices to drive change at scale, while respecting the nation's cherished nomadic heritage.

- Similarly, AI can help governments offer more citizens access to healthcare and clinically-accurate information. In Sub-Saharan Africa, Jacaranda Health's SMS-based digital health service, PROMPTS, uses behavioral nudges and a natural language-powered helpdesk to triage questions from new and expectant mothers and connect them with human agents to help handle clinically urgent cases. Jacaranda partners with 22 county governments in Kenya, the Ghana Health Service and the Eswatini Ministry of

Health to deploy the service, currently available in English and Kiswahili, with plans to expand the platform into multiple "low-resourced languages" to support three million underserved mothers across Africa.

- Governments harness AI to drive action on climate change. Through Project Greenlight, Google is working with 12 major city governments globally, including Rio de Janeiro, Abu Dhabi, and Jakarta, to use AI to improve traffic flow and reduce emissions by modeling traffic patterns and making recommendations for optimizing the existing traffic light plans, reducing stop-and-go traffic. City engineers can implement these in as little as five minutes, using existing infrastructure.

- AI empowers governments to be more responsive to communities' needs. The Open Buildings dataset, launched by our research team in Accra, uses AI and satellite imagery to pinpoint building locations in remote areas, providing critical data that helps governments understand residents' needs to prioritize and deliver essential services, including electricity. Municipal governments (including Memphis in the US and Blackpool in England) are also pairing AI with video from local buses to quickly identify potholes, leading to faster repairs and a smoother ride for residents and visitors.

To identify the most beneficial uses of AI for their citizens, governments can conduct national AI opportunity assessments for public services, particularly in sectors such as health, education, transportation, and other services that most immediately impact people's lives. At the same time, they can identify priority national sectors that have the highest need for AI solutions, such as the agriculture, manufacturing, healthcare, and energy sectors, and work with these sectors to develop proof-of-concept initiatives.

To fully realize the transformative power of AI, governments in emerging markets must invest in building their own internal AI expertise. This includes comprehensive training initiatives for both policymakers and technical staff, ensuring they understand AI's potential, limitations, and ethical considerations. Regional institutions, multilateral development banks, civil society, and the private sector have a vital role to play in this process, offering knowledge-sharing platforms, funding, and collaborative expertise. A successful example is the Apolitical Government AI Campus, an initiative co-funded by Google.org, which has upskilled 10 thousand policymakers in 116 countries and aims to become the global trusted hub for government AI excellence.

Case 1

Generative AI helping governments in crisis response

Emerging markets, which bear the brunt of climate change and related natural disasters, can benefit from AI tools that can help increase the speed, accuracy and coverage of post-disaster damage assessments for events like hurricanes, wildfires, floods and earthquakes.

For example, after Hurricane Otis ravaged Acapulco, Mexico in October 2023, Google's AI models rapidly analyzed pre- and post-disaster satellite imagery to identify damaged hotspots and individual buildings. The damage assessment was used to validate SMBs locations hit by Otis through Google My Business profiles. This critical information, shared with the Ministry of Economy and crisis responders, offered crucial and timely insights for prioritizing reconstruction and targeted economic recovery efforts.

Startups: Scaling up through rapid ideation and innovation

Startups (i.e., young, rapidly-growing companies that often leverage technology to create a unique product or service) can play an important role in emerging markets. Their ability to create innovative products and services designed for local needs, as well as those suitable for export, generates crucial economic activity and sustainable growth.

Startups widen the reach of technology, developing products that often bring innovation to local communities in an accessible and affordable way. The healthcare sector has seen startups improve rural access through telemedicine. Education startups are expanding access to high-quality learning opportunities such as the Brazilian Descomplica startup which built and scaled an online educational platform preparing students for college entrance exams.

Startups globally face high failure rates, a reality that's even more pronounced in emerging markets. Barriers to success can include limited talent pools, complex regulations, and insufficient funding. To unlock the potential of startups, it is crucial to proactively address these obstacles and enable startups to agilely respond to market dynamics.

AI tools give startups new ways to scale up and succeed, even in challenging market conditions. Examples include:

- Startups can leverage AI to improve the speed of product development, run simulations for product testing, and analyze customer data to deliver products with better fit. These benefits empower startups to expand into new markets quickly and cost-effectively, potentially reducing product development expenses by up to 50%. Additionally, startups can easily integrate advanced machine learning tools and algorithms through APIs, enabling the creation of products with valuable features like text-to-speech.
- Startups can boost product innovation with AI-powered data collection and analysis, rapidly extracting insights from industry trends and even generating new ideas using generative AI tools.
- As startups seek scale, AI can help them lower costs and raise funding through automating customer and investor engagements, HR- and finance-related paperwork processing, and even content creation (see Case 2).

Case 2
Slang – Using AI to scale content generation

Slang, a Latin American-based startup, offers individuals opportunities to learn English in business settings through a curated, tech-enabled education platform. Users are provided personalized content by selecting professions they are in, receiving relevant learning materials that allow them to practice English-based communication in specific contexts and topics.

Developing this product requires Slang to consistently provide tailored English content that maintains a high quality and must be continually updated. This requires significant resources in terms of manpower and expertise. Through generative AI, Slang was able to produce factually accurate and linguistically correct content about complex topics, boosting productivity by more than 20 times between 2022 and mid-2023.

Small- and medium-sized businesses (SMBs): Boosting competitiveness by automating tasks

Small and medium-sized businesses (SMBs) are crucial to the economies of emerging markets, where they form over 90% of all businesses and contribute to more than 40% of GDP and more than 50% of employment. A robust and resilient economy

depends on the financial and structural stability of SMBs. These firms are not only major employers, they also form crucial links in the supply chains of larger companies, serving as both suppliers and customers. They also present investment opportunities for those larger businesses.

Despite their critical role and growth potential, SMBs in emerging markets face significant challenges, including limited access to finance, technology, and skilled labor. The International Finance Corporation (IFC) estimates that SMBs in developing economies face an unmet financing need of 5.2 trillion USD annually, which is 1.4 times the current global SMB lending level. Financing gaps are particularly acute in Latin America and the Caribbean and the Middle East and North Africa, where they exceed 87%.

Emerging markets urgently need to boost SMB productivity to rival developed economies. In Latin America, for example, micro-enterprises contribute only 3.2% of GDP, far below the 20% generated by comparable European businesses.

AI provides SMBs with powerful tools to address critical challenges and enhance their operations. Potential applications include:

- AI can improve the ease of using and implementing enterprise software, reducing the barriers to digital adoption for SMBs. User-friendly platforms that require little coding expertise (like drag-and-drop interfaces for websites or model building) and conversational AI solutions empower non-technical employees to engage with software and make changes that would otherwise be complex and time-consuming.
- Cloud-based platforms enable SMBs to leverage machine learning with minimal investment, providing access to advanced AI tools and supporting the development of AI applications.
- AI-enabled analysis of customer data enables firms to gain insights into individual preferences, behaviors, and needs. Businesses that excel at personalization are estimated to generate 40% more revenue than average performers by tailoring offerings and retaining more customers.
- Through AI tools, repetitive processes can be automated and operations streamlined, freeing time for workers to participate in higher value-added work, such as innovating new products or reaching more markets. For example, by tracking and analyzing payment patterns through AI, SMBs can track customer behavior, forecast future payments, and identify opportunities to upsell to existing users (See Case 3).

Case 3

M-KOPA – Managing customers and improving performance through AI

M-KOPA, a small Kenyan-based enterprise, provides individuals access to finance — especially for those who are disadvantaged. The company offers services such as microloans, insurance, and credit, mainly via smartphones and mobile technologies, to individuals from Uganda to Ghana.

By tracking customer repayment performance through AI analytics, M-KOPA has achieved significant increases in customer engagement, especially by offering follow-on products and services to customers who successfully repaid their initial loans. Such tools have enabled the company to track and improve the health of its lending portfolio through an AI-enabled system that can forecast repayment patterns for each loan.

Exporters: Enabling trade by simplifying processes, forecasting demand, and improving market access

Exporters have helped fuel economic growth in many emerging markets and AI will further accelerate their success. Exports generate jobs and draw income from abroad, promote innovation and productivity, and attract foreign investment. Emerging markets are increasingly participating in global trade, accounting for about 42% of the world's exports in 2022, up from 37% in 2010.

AI can significantly boost the competitiveness of emerging market exporters. Developers can harness AI to create AI-based applications with global appeal, opening up new revenue streams. Additionally, AI-driven marketing tools can reduce the costs associated with entering overseas markets by targeting campaigns more effectively. AI solutions can also enhance export efficiency by streamlining complex processes and minimizing trade compliance costs, saving exporters valuable time and resources. This opens the door for even small and medium-sized businesses (SMBs) to enter the international market. Initiatives like the free AI training courses offered by the Inter-American Development Bank and Google empower SMBs in Latin America to leverage AI for export promotion and growth.

Some examples of how AI can help exporters:

- Sensor-based technologies can be augmented with AI analytics to track the movement of goods and exports as they are shipped over great distances. Businesses can use AI to identify bottlenecks in key locations, while also tracking which routes have the highest variability in meeting targeted delivery times. Through AI, delivery routes and scheduling can also be optimized for dispatchers and deliveries (See Case 4).

- Natural Language Processing (NLP) algorithms can help to simplify regulatory trade compliance for exporting businesses. Businesses can use AI-powered tools to spot errors in trade documentation (e.g., product code misclassification) to prevent delays or fines, especially when managing the broad World Customs Organization's harmonized system.

- Exporters can also benefit from simplified supply chain management through AI-driven forecasting models built upon data and historical trends, enabling firms to more accurately predict demand and sales forecasts, schedule orders optimally, and mitigate waste. The use of AI in supply chain management is estimated to reduce logistics costs by 15% and improve inventory levels by 35%.

- AI can enable app developers to more easily modify their apps to suit end-users in different markets. Generative AI applications provide automatic translation, enabling digital exporters (e.g., app developers) to access new users, enhance predictive analytics and boost the digital exports of emerging markets.

Case 4

Solai – Optimizing transportation and logistics for distributors

Logistics is a key issue for most companies, especially within emerging markets where infrastructure connectivity can sometimes be challenging. Unpredictable traffic jams and road accidents also contribute to distribution issues. To aid companies, Solai, a Kazakhstan-based startup, provides last-mile distribution solutions enabled by AI.

Through analysis of logistics and transportation data through AI and deep learning, Solai is able to create optimal delivery routes, scheduling, and dispatches all of which translate into saved costs and time. Drivers and logistics providers are able to derive significant benefits by being able to receive optimal route adjustments quickly and in real-time — especially on unpredictable roads. Solai helped clients save up to 20% of costs and today partners with larger companies to pilot and provide its digital logistics solutions.

Content Creation: Reaching new audiences faster

The creator economy, where individuals build communities and generate income through content creation, is booming globally with a market worth over USD 100 billion. Emerging markets, home to almost 90% of the world's youth population, represent a massive untapped source of creative talent and entrepreneurial drive within this space. Creators in these markets wield unique influence, reflecting local cultures and catering to the rapidly expanding consumer base.

As emerging markets grow and consumption increases, creators should be seen as key channels for new brands to reach consumers in these markets. The nature and niche of the content these creators produce can attract specific consumer types that different brands can leverage. This allows small brands on a budget or big brands targeting a specific consumer base to market their products without spending considerable sums on larger advertisement campaigns.

Content creators can connect with audiences across the globe and share their culture and digital content, functioning as modern day "mini-exporters". These avenues also help to lower barriers to entering new markets, enabling both creators and brands to connect with newer audiences without investing significant budgets. Genesis CSP, a company headquartered in Almaty, Kazakhstan, uses AI for writing scripts, customizing videos, and dubbing content into foreign languages to help their clients, local content creators, to scale to foreign markets.

AI tools allow creators to produce more and better quality content while expanding language accessibility. This allows creators to spot and address new trends, lower production costs, and reach a wider range of demographics. Other examples include:

- AI-powered video editors can improve sound quality and reduce editing time by transcribing video automatically while also allowing users to edit the final transcript. This speeds up content creation and improves productivity.
- Prompt-based image- and video-generation applications can create high-quality images and videos based on prompts, lowering the skill and cost barriers for generating visuals and allowing users to create videos that look professional regardless of skill level.
- Online video dubbing tools leverage AI to dub videos across multiple languages, expanding the reach of creators beyond their linguistic group and potentially contributing to the digital exports of emerging markets (See Case 5).

Case 5

Maestra.ai – Using AI to expand access to markets for creators

Founded by a Turkish entrepreneur, Maestra.ai is one of the few AI-enabled transcription, voiceover, and subtitling tools. It caters to creators aiming to grow their audiences. The app also supports over 100 other languages, allowing creators to transcend linguistic barriers and expand their reach across multiple markets.

Maestra.ai's suite of offerings cuts the time it takes for users to manually transcribe or provide captions for their content. Its voiceover and dubbing functionalities help creators save costs and overcome hurdles to accessing new markets. The variety of tools offered by the platform is useful for all kinds of content, from bloggers and podcasters to video creators.

Agriculture: Improving crop yield and farm management

Agriculture plays a crucial role in the economy of many emerging markets, providing food security and employment, as well as earnings from agricultural exports. In sub-Saharan Africa, a large portion of the population depends on agriculture for their livelihoods as the sector contributes to approximately 60% of the region's employment and 20% of its GDP.

A productive agriculture sector is vital for emerging markets, fueling economic growth and freeing up resources for other industries. However, global agricultural productivity growth has slowed in recent years, particularly in these markets. This slowdown stems from multiple factors, including climate change-related disruptions such as extreme weather events, land degradation, and emerging crop diseases and pests. The slow adoption of agricultural technologies, particularly among smallholder farms, further limits productivity gains. Smallholder farmers, who produce around 70% of Africa's food supply, often live in poverty and lack the resources to access the tools and technologies that could significantly boost their yields and overall output.

Empowering farmers in emerging markets with accessible AI tools, such as those integrated into smartphones, is a powerful way to bolster their agricultural sectors. In recent years, a range of innovative AI tools have emerged to help farmers of all sizes improve their yields and productivity. Examples include:

- AI-enabled solutions run on smartphones that smallholder farmers can subscribe to easily and that offer accessible insights on crop management via mobile notifications. For example, UjuziKilimo, a Kenyan-based startup, provides farmers with real-time data using sensors and guides them with targeted insights on crop management. Such tools also enable farmers to be more productive by keeping them informed of the latest weather or market developments.

- Precision agriculture, particularly solutions that use AI analytics to gather and interpret soil quality, moisture, and temperature data, empowers farmers with actionable insights. This real-time monitoring of crop growth and environmental conditions allows for timely, targeted interventions that can significantly boost crop yields and quality.

- Smart warning systems for pest management can limit pesticide usage, thereby saving costs for farmers and ensuring more environmentally friendly farming. Machine learning solutions can help identify pests and diseases using mobile cameras to provide solutions that help mitigate crop damage or disease spread (See Case 6).

- Further upstream, AI tools for biology like Google DeepMind's protein structure prediction tool AlphaFold could improve our understanding of plant resilience, immunity and disease, helping to fight crop pathogens and improve food security.

Case 6

Farmer's Companion – Using AI to mitigate crop damage from pests

Founded in Uganda, Farmer's Companion informs farmers when a crop has been infested with pests or diseases. The app was created using TensorFlow, Google's free and open AI/ML software library, to provide farmers with information on the degree of infestation, the associated risks, and the best treatments that can be adopted to mitigate damage.

Farmer's Companion was initially developed in response to Fall Armyworm (FAW), a crop-destroying caterpillar that poses a threat to food security across the African continent. After successfully targeting FAW, the app continues to expand the list of pests and diseases it can identify and provide mitigation solutions for.

Natural resources: Improving operational efficiencies through automation

Natural resources offer significant growth and export opportunities for resource-rich emerging markets. Many Central Asian, African, and Latin American countries possess vast reserves of rare earth metals essential for electric vehicles and solar power — a booming global industry. Similarly, Middle Eastern nations hold a dominant position in oil exports. By strategically developing these resources, emerging markets can play a pivotal role in the global energy transition.

Natural resources hold the potential for job creation, manufacturing support, and export revenue in emerging markets. However, this potential is too often overshadowed by high costs, unsafe working conditions, and devastating environmental impacts. Extractive industries alone account for 90% of biodiversity loss and 50% of carbon emissions, while tragically contributing to the highest workplace fatality rates.

To harness the economic benefits of natural resources, emerging markets must prioritize sustainable practices, worker safety, and responsible resource management.

To ensure sustainable, safe, and resilient practices in natural resource industries, digitalization — particularly AI adoption — is essential. Smart mining technologies alone could save mineral producers USD 290-390 billion annually by 2035. Importantly, AI solutions can drastically improve safety within resource firms. These solutions can autonomously monitor toxic environments, predict hazards, and minimize worker exposure to high-risk situations through the use of AI-enabled smart equipment.

Emerging market industry players can leverage powerful AI applications already in use by major industry leaders. Examples of these use cases include:

- Smart mining machinery and equipment can make decisions in complex and high-stakes situations to ensure mining is safer and more efficient for workers. Smart mining equipment has been developed to conduct activities from automated site navigation and machine health monitoring to screening on-site worker health (See Case 7).

- AI-based tools can use satellite imagery and other geographical data to locate prospective mines with high levels of accuracy. Some solutions employ AI to specifically locate rare earth metals that are required for sustainable technologies like solar panels and electric vehicles.

These tools can also help to locate high-grade deposits that enable minimal land destruction and associated biodiversity loss while driving cost efficiency for prospecting.

- Visualization of oil reservoirs and performance analysis through AI and automation can boost the efficiency of existing wells, extending their lifetime and reducing the need for further exploration — lessening the environmental impact of extractive firms.
- AI-enabled smart sorting of minerals based on specific attributes can allow firms to reduce the energy required to process raw materials, thereby improving processing efficiency and the quality of finished goods.

Case 7

Vale – Using AI to improve worker and asset safety

Vale, a Brazilian mining company, has been implementing AI technologies through its AI Center since 2019. Through its AI applications, Vale has managed to improve its operational safety and production efficiency of these mining units in Vitória, Brazil. One project involved collecting data of mining equipment and using AI-enabled analysis to increase the lifespan of these assets. As a result of these initiatives, Vale estimates that its AI-related projects have generated cost savings worth around USD20 million per year.

Mining is infamous for worker hazards. Among the various initiatives that must be taken to improve worker safety in this industry, AI-enabled monitoring can assist operators in identifying and mitigating risks. Vale collects and analyzes data related to accidents, near misses, and unsafe conditions to calculate the probability of incidents.

Manufacturing: Boosting productivity by streamlining processes and identifying bottlenecks

AI's benefits extend far beyond the tech sector. Traditional industries across emerging markets, including manufacturing, are already embracing AI-powered technologies. This adoption is crucial, as research shows a strong link between manufacturing growth and rising per capita income in emerging markets.

Manufacturing firms generate value for emerging market economies in several ways. Not only do they scale production, but they also drive demand throughout related industries like logistics and mobility, owing to the need to move and store goods across the supply chain. This spillover effect extends to the services sector. However, manufacturers face significant challenges in emerging markets, including a lack of skilled labor, frequent equipment breakdowns, and unreliable electricity access. As a result, in emerging markets like Latin America, the manufacturing value added per capita is over 4 times lower than in developed markets.

The AI revolution in manufacturing presents a transformative opportunity for emerging markets. By strategically adopting AI, manufacturers can streamline operations, significantly boost productivity, and create entirely new growth avenues. Some examples of use cases include:

- Manufacturing robot automation and AI-enabled enterprise resource planning can streamline production on the factory floor and manage internal resourcing needs. By analyzing factory data, these tools optimize facility operations for maximum efficiency (see Case 8).
- AI-enabled predictive maintenance of machinery that can analyze and predict potential breakdowns enables manufacturers to increase the lifespan of their assets. On average, predictive maintenance can reduce breakdowns by 70% and maintenance costs by 25% for manufacturing firms.
- Quality assurance checks conducted by leveraging AI-driven, computer vision analysis can enable rapid quality inspection of manufactured goods, reducing the potential for human errors and maintaining high-quality standards.

Case 8

Dataprophet – Optimizing manufacturing processes using AI

Dataprophet, a South African AI-as-a-service platform for manufacturers, leverages factory data and AI to provide guidance on optimizing a manufacturing facility's operations. The company also offers AI solutions to manufacturers who may not have the right data tracking hardware and software infrastructure in place, as well as AI-readiness assessments for factories and solutions for data ingestion and storage.

Factory engineers and operators can use the actionable insights provided by Dataprophet to improve processes leading to cost savings and efficiency gains. It does this by analyzing current and historical production data associated with the facility. In one instance, Dataprophet helped a factory reduce its metal scrap by 29%. In another, the tool helped a large manufacturer of engine blocks reduce defect rates by 55%.

Services: Reaching new customers and simplifying service delivery

The service sector plays a crucial role in emerging market economies, accounting for approximately 55% of GDP and 45% of employment, respectively. Digitalization is rapidly transforming industries like retail, software development, and outsourced business processes, enabling providers and customers to connect seamlessly across borders and boosting productivity.

Despite these advancements, much of the service sector in emerging markets remains less modernized compared to other industries. For instance, in Nigeria and Kenya, traditional open-air kiosks drive a majority of retail industry sales (97% and 77%, respectively). Similarly, in Colombia, 52% of consumer packaged goods are bought from similar types of stores.

Numerous AI applications offer opportunities to boost the growth of service sectors in emerging markets. These include:

- AI-driven chatbots and personalized messaging facilitate interactions between customers and businesses, saving costs while increasing revenue for many businesses. For instance, in some studies, call centers reported a 14% improvement in issues resolved per hour, developers completed assigned tasks 55% faster, and AI-assisted financial analysts outperformed other human analysts in 57% of the forecasts.
- Retailers and other consumer-facing businesses, especially smaller-sized ones, can leverage AI to boost their reach and improve their cost-effectiveness, enhancing these companies' competitiveness in the global services industry landscape. Digital marketing tools, coupled with AI-driven analytics, enable businesses to leverage historical customer patterns and trends to identify new customers and enhance customer segmentation.
- Businesses operating in the financial services industry can leverage their rich datasets with AI solutions to mitigate risks and improve capital management, as well as allocation (See Case 9).

Case 9

Semantix – Providing a general-purpose platform and applications impacting businesses across industries

Founded in Brazil and with a presence across Latin America, Semantix is an enterprise AI platform and applications provider that helps businesses across industries leverage AI tools to generate predictive insights and guide decision-making. Semantix offers a general-purpose platform that allows users to develop and scale their own AI solutions. It also offers tailor-made products catering to businesses operating in the financial services industry, healthcare, and retail, among others.

Semantix's finance-focused solutions support a variety of actors, such as credit providers, banks, and other FinTechs. Its AI-based solutions enable data governance, integration, and predictive analytics geared towards applications like risk analysis, asset management, and cost predictions.

Box 1
What are the roadblocks for AI adoption?

While widespread AI adoption can benefit a wide range of economic groups within emerging markets, roadblocks remain. Inadequate digital infrastructure, data and funding constraints, a shortage of skilled talent, and legal frameworks that can restrain innovation are key areas requiring attention within these economies:

Infrastructure limitations:
Weak digital infrastructure in many countries is a hurdle to AI adoption. This includes inadequate electricity access — highlighted by the 80% of the global population without electricity residing in sub-Saharan Africa — and limited internet connectivity with 230 million Latin Americans lacking mobile internet connectivity.

Skill gaps:
A scarcity of AI-related skills, compounded by low literacy rates, hampers the adoption and effective use of AI technologies. This is further exacerbated by the lack of supportive talent ecosystems. For example, some markets in Latin America, as well as many in Africa, rank far lower than advanced economies in Wiley's Digital Skills Gap Index (DSGI), which measures the capacity and readiness to cultivate digital skills among the broad population.

Lagging investment:
Emerging market governments and firms tend to have smaller budgets for research and development. For instance, according to Chile's National Center for Artificial Intelligence (CENIA) Latin America's combined AI investment lags significantly, reaching only 1.7% of US investment levels and 5% of China's.

Inadequate data systems and funding:
The vital role of data in tackling social challenges is widely acknowledged, yet government funding for national statistical systems has stagnated, hindering data collection, sharing, and use across both public and private sectors. These challenges extend to the basic vital statistics: Globally, one in four children under the age of five lack birth registration data.

Lack of enabling policy ecosystem:
For AI technologies to flourish, an enabling regulatory environment is essential. Historically, entrepreneurs in emerging markets have faced higher costs of starting a business relative to counterparts in advanced economies. Reducing these regulatory burdens is crucial for supporting AI adoption.

03 Making it happen: Game changers for AI adoption

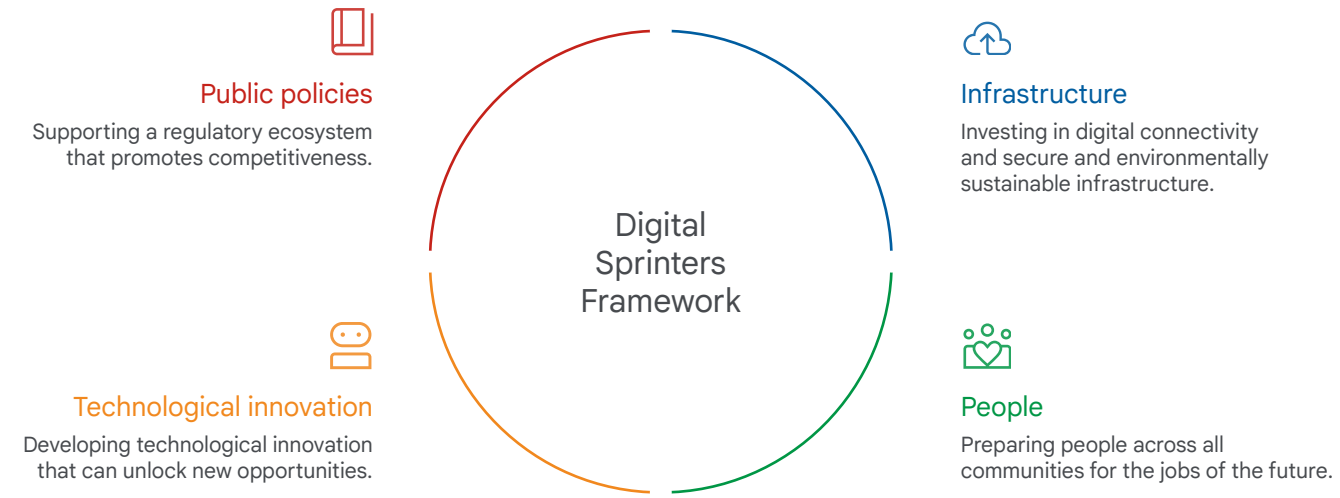
To keep pace with rapid technological change and capture its benefits, countries must simultaneously work on two fronts: bolstering the core building blocks of a digital economy, such as reliable electricity, widespread internet access, and education, and simultaneously embarking on strategic initiatives that build momentum towards maximizing AI's potential.

Failing to do so could widen the developmental gap with countries operating at the leading edge of innovation.

The recommendations made in the earlier Digital Sprinters report speak to the fundamental reforms and initiatives that will help governments create a thriving digital economy. Those recommendations are just as, if not more, relevant today as countries seek to harness the AI transformation.

In this report, we have focused on four ambitious "game-changing" initiatives — one for each of the Digital Sprinters pillars — that can catalyze momentum and amplify AI's transformative potential for profound impact. They build on the original Digital Sprinters framework but are contextualized to challenges related to AI innovation and adoption.

Figure 1
The digital sprinters framework



Game Changer 1: 100% adoption of cloud first initiatives

Cloud computing provides the essential foundation that businesses and governments need to fully harness the power of AI. Its vast computational resources, scalable data storage, management, and analysis capabilities are crucial for developing and deploying AI applications. In order to maximize the benefits of AI, governments and organizations should adopt a "cloud first policy" and prioritize cloud-based IT infrastructure and services over on-premise ones.

Cloud computing empowers companies to compete in the global economy by democratizing access to cutting-edge technologies, including AI, that allow them to quickly adapt, uncover insights from their data, and drive innovation to stay ahead of the curve. The benefits of cloud computing include:

- Cost savings and efficiency: Cloud platforms eliminate the capital-intensive burden of purchasing hardware and software and, in many cases, can lower the ongoing costs of managing on-site data centers. Hyperscale cloud providers also have the ability to invest in more energy-efficient infrastructure compared to traditional on-premise setups.
- Enhanced productivity: Cloud platforms provide smaller firms with cost-effective access to powerful AI tools, including algorithms and analytics that would otherwise be prohibitively expensive. This enables data-driven decision-making for smarter, faster operations and a productivity boost.
- Scalability and agility: Companies can rapidly scale their IT services up or down in response to changing market conditions, ensuring they always have the right resources without unnecessary overhead.
- Enhanced security: Major cloud providers dedicate significant resources to data security, implementing multi-layered protection and expert response teams. This allows businesses to leverage top-tier security without the high costs of building and maintaining their own systems.

To date, emerging market economies have lagged in adopting cloud services. For example, most countries

in Latin America and the Middle East are well behind developed markets in terms of total IT spending on public cloud services, with spending in each region amounting to approximately USD 10 billion in 2022, compared to USD 100 billion in the United States alone. At the same time, the cloud penetration rate in Africa stands at just 15%, lower than the OECD average of around one-third.

To promote greater domestic use of cloud services, governments should embrace "Cloud First" initiatives that give preferential consideration to the adoption of cloud solutions over traditional IT systems. Real-world success stories, such as Mexico's rapid e-invoice processing and the Philippines' streamlined permit applications, demonstrate the transformative power of cloud solutions. A government-led "Cloud First" approach not only improves public services but also signals to the private sector the value and reliability of cloud technology, potentially inspiring broader adoption across the economy.

Not having access to local data center infrastructure should not exclude emerging market countries from reaping the benefits of AI. Strategically located regional cloud solutions offer a collaborative and cost-effective way for multiple countries to overcome limitations in demand, energy resources, and logistical challenges. This approach fuels AI innovation within emerging markets without the need for each individual country to build extensive infrastructure on its own.

Developing cloud first roadmaps

Governments need to chart a clear pathway to support cloud infrastructure adoption in their respective countries.

First, governments should explicitly commit to a "Cloud First" policy and develop roadmaps for how to achieve this goal. Initiatives like Qatar's Cloud Policy Framework, which stipulates the assessment of Cloud solutions over on-premise solutions, or Israel's Project Nimbus, which establishes a comprehensive, whole-of-government framework for the adoption of cloud services, can serve as inspiration. Clear targets, such as those set by Singapore and Rwanda, provide focus and accountability.

As part of this commitment, governments should conduct targeted cloud and AI opportunity assessments, focusing on services with the greatest potential for citizen impact — sectors like healthcare, education, and transportation should be prioritized.

Effective cloud first roadmaps need to outline frameworks to ensure successful government-industry collaboration. These frameworks cover clear procurement guidelines, well-defined performance metrics, and transparent vendor management frameworks. The roadmaps should also prioritize promoting competition to create value for governments and avoid restrictive practices that hinder long-term flexibility.

With cloud infrastructure in place, governments can benefit by deploying AI solutions on cloud. For example, Google and the Royal Thai Government recently announced a strategic partnership in which Google Cloud will contribute technology and policy expertise to support Thailand's Go Cloud First policy direction. This partnership aims to modernize Thailand's government services and public sector delivery through AI technologies, beginning with public transportation, e-government services and big data usage.

Second, SMBs, traditional industries, and startups need support in adopting AI tools on the cloud. This is especially critical in emerging markets, where SMBs make up a significant portion of businesses but often lag in technology adoption. Targeted training on the integration of cloud-based AI, along with financial incentives like tax rebates for cloud migration, can empower SMBs to embrace AI as part of their digital transformation strategies. For example, Chile's national Ruta Digital program that

provides AI-skilling courses to smaller businesses as an example. Startups should also receive support in integrating AI into their products and services, either through funding or knowledge-sharing initiatives. Governments can provide startups with direct access to AI-powered tools and Cloud capabilities to empower them to build and test their own AI solutions in a controlled and dedicated environment. This support will drive innovation, competitiveness, and economic growth within these vital sectors.

Finally, to support the transition to Cloud First, governments should implement policies that address data governance and security concerns. This includes strong trade and investment frameworks, given the cross-border nature of AI. To maximize the benefit of cloud computing for government entities, data must be free to flow within and beyond national borders. Policymakers should work across borders in support of international frameworks and shared principles that promote data protection, support trusted cross-border data flows, and thereby promote economic development and digital transformation.

In Africa for example, the African Union has initiated a continent-wide digital trade agreement under the African Continental Free Trade Area (AfCFTA). The AfCFTA paves the way for the 55 AU member states to adopt harmonized regulations on critical issues such as cross-border data flows and emerging technologies.

Similarly, several Latin American countries including Chile, Peru, and Mexico have committed to enabling cross-border data flows through the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP). Chile has also signed the Digital Economy Partnership Agreement (DEPA) with Singapore and New Zealand, which contain similarly strong commitments on cross-border data flows.

Policy should support portability and interoperability, while seeking to mitigate vendor lock-in. This will promote a healthy multi-cloud ecosystem where data can move freely between providers, empowering organizations with operational flexibility. Policymakers should pay attention to developing frameworks for managing open data sets for research and AI training purposes — an emerging aspect of policy making which is expected to only grow in its significance.

Game Changer 2: National AI skills initiatives

AI is likely to revolutionize work across the world, sparking the creation of new products, services, and generating breakthroughs in manufacturing, agriculture, and health that will be key drivers of jobs and well-being. Countries that fail to cultivate AI-fluent populations risk falling behind in innovation, economic growth, and development.

While most emerging markets benefit from having young populations familiar with digital, and particularly mobile, technology, substantial segments of the citizenry lack basic digital literacy. An equally pressing concern is the scarcity of professionals with advanced technical expertise needed to tailor new technologies to address local challenges.

Unlike advanced economies, emerging markets employ fewer knowledge workers and a larger share of workers in sectors that are difficult to automate. For that reason, concerns about job losses to automation tend to be overshadowed by concerns about losing out on the AI opportunity. To bridge the digital and skills divide, emerging markets need to take a strategic approach to building AI expertise at all levels of society — from foundational literacy to advanced technical skills.

Building an AI-ready workforce calls for a collaborative, society-wide effort involving government,

the private sector, educational institutions aimed at building three levels of AI fluency: *AI Learners* with basic AI literacy; *AI Implementers*, who use and adapt AI tools at work; and *AI Innovators*, who can shape how the technology evolves using deep technical expertise.

AI learners: Every citizen, including civil servants, should possess basic AI literacy. This entails understanding how AI works, its potential applications and limitations, and the ability to use simple AI-powered tools. To achieve this, collaborative initiatives should prioritize the following:

- Increase public awareness: Initiate government-led campaigns to educate citizens about AI, demystifying the technology, encouraging responsible use, and informed decision-making.

- Integrate AI in the classroom: Integrate AI concepts into school curriculums from an early age by treating digital and AI literacy as a core component of education. Experience AI, an educational online program for teens (ages 11-14) developed in collaboration by the Raspberry Pi Foundation and Google DeepMind, is designed to support teachers in teaching basics of AI and ML, and to get young people, including those across the emerging markets passionate about AI.

- Expand accessible resources: Develop and promote free or low-cost online courses, tutorials, and workshops on AI basics, making learning accessible to everyone. Google's no-cost Generative AI Fundamentals course, requiring no prior technical experience, provides foundational understanding of generative AI technology.

AI implementers: For AI to deliver widespread economic gains, businesses across industries must embrace productivity-enhancing applications. This transformation hinges on a workforce equipped to not only use AI tools but adapt and innovate with them. Some strategies to cultivate an AI-ready workforce:

- Create training partnerships: Develop national AI training and support programs to give workers hands-on experience in applying AI, creating a pipeline of talent for in-demand roles in sectors like agriculture, healthcare, and manufacturing, where AI-driven efficiency gains can have a significant impact. To scale this effort, public-private partnership initiatives can help, such as the Elevate Initiative between the Saudi Authority for Data and Artificial Intelligence and Google Cloud that provides training on data and AI to more than 25,000 women in emerging markets.

- Expand online learning: Make online training and certification programs widely accessible, offering flexible pathways to AI skills development. Where feasible, leverage AI-powered adaptive learning platforms to tailor instruction to individual needs, ensuring effective knowledge transfer. Industry has a critical role to play in developing new flexible skilling programs that focus on AI preparedness. Google's online Professional Certificates program offered in a number of emerging markets supports job-readiness for people without prior experience in the digital or AI fields across such areas as Data Analytics, Cybersecurity and Digital Marketing, among others.

- Bridge the digital divide: Proactively extend AI training initiatives to SMBs and rural areas to ensure that the benefits of this technology are shared across society. In Israel, the Journey to Tech program focuses on diversifying the Israel tech talent over 5 years. A strategic partnership between the Government, NGOs and the industry, it seeks to grow AI tech professionals from underrepresented populations through a professional certification program. In parallel, it

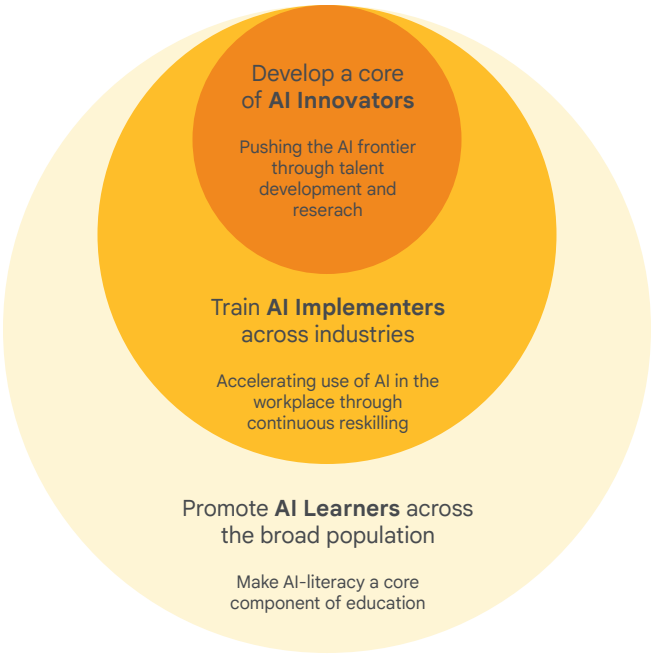
offers AI inspiration and hands-on AI experience to teens, with focus on social and geographical periphery.

AI innovators: To harness the full potential of AI, emerging market countries must become more than just adopters — they need to be incubators of innovation. The following initiatives can help cultivate a robust cadre of AI innovators empowered to tailor solutions to local needs:

- Ignite the STEM spark: Invest heavily in STEM education from an early age, fostering a new generation of AI-literate thinkers and problem-solvers. For example, in Kenya, the Ministry of Education has adopted Google's Android Developer Curriculum, including several AI modules, into the national curriculum for tertiary and vocational educational institutions, with the aim of graduating at least 5000 developers annually through these establishments only. In Türkiye, since launch in 2017 of the BTK Academy — a partnership project between Google and the Information and Communication Technology Authority (BTK) — more than 200 thousand students have been reached through online certificate training and offline events, with key focus on big data and, more recently AI and Generative AI.

- Fuel research: Support AI research and development through targeted funding, establishing world-class research centers in collaboration with universities and industry. An example of such an initiative is the research partnership between Google and the Mohammed bin Zayed University of Artificial Intelligence in the UAE that aims to improve Arabic functionality in Large Language Models with a focus on sustainability.

- Welcome global talent: Incentivize the return of skilled scientists and engineers studying abroad and from the diaspora and provide digital nomad visas to skilled talent, encouraging the exchange of knowledge and expertise.



Game Changer 3:
Modernizing national data systems for the AI era

For nearly a decade, the United Nations has stressed the importance of high-quality, timely, disaggregated, and open data in the pursuit of the Sustainable Development Goals (SDGs). AI's emergence has made the role of data even more critical. High-quality datasets are essential for training effective AI models. To minimize bias and ensure AI solutions are relevant, training data must reflect the diversity of users, perspectives, languages, and cultures within the intended environment. This requires a concerted effort to collect data representing cultural knowledge often overlooked in existing datasets, including low-resource languages — those with limited digital text, speech data, and linguistic resources.

Despite the explosive growth of data, many countries lack the policies, institutions, and frameworks needed to fully harness its potential. This hinders governments' ability to craft targeted solutions and leverage AI's capabilities for development goals. While AI can enhance our understanding in low-information environments by extracting insights from new and existing data sources (e.g. combining AI and satellite data to pinpoint the location of buildings and prioritize electricity) and employing techniques like interpolation and minimization, the foundation for accurate and equitable decision-making remains high-quality, representative data.

In the evolving AI landscape, prioritizing the collection, organization, and responsible use of data is no longer optional for governments. It's essential for informed policymaking, fostering data-driven innovation, and effectively meeting the needs of citizens. A comprehensive approach would include the following elements:

1. Establish a whole-of-government commitment to better utilizing data. Too often, data collected by government agencies remains trapped in silos, limiting the insights that could emerge from combining data across agencies. Political champions who recognize the transformative power of data are crucial for breaking down these barriers and creating the systems and standards needed to share data across agencies. This investment pays off: recent research indicates that governments in low- and middle-income countries can capture an average return of $32 for every $1 invested in strengthening their data systems.

2. Make public data more available and accessible. Open access to public data on demographics, transportation, environmental conditions, and more can catalyze innovation. It empowers entrepreneurs to tailor products and services to local needs, drives research breakthroughs, and fuels the creation of more sophisticated AI models. While open data access has expanded greatly over the past decade, emerging markets lag behind. Investing in interoperable technical standards, machine-readable formats, capacity-building support, and open licensing is crucial to ensure the data revolution reaches all corners of the globe.

3. Facilitate cross-border data flows. Cross-border data flows enhance the capability of partners to work together to ensure AI systems are trained on demographically and geographically diverse datasets, which helps mitigate potential bias in these systems and makes them more useful and relevant to users around the world. Without cross-border data flows, underlying models may be trained on unrepresentative data. More broadly, data localization policies impose costs on the ability to deliver affordable products and services, including to the poor, by making it more difficult to use international cloud computing services.

4. Improve data infrastructure at national and regional levels. A robust data infrastructure — encompassing the systems, technologies, rules, and expertise needed for responsible data use — is crucial for modern economic development. India's integrated suite of APIs and digital applications (commonly referred to as the India Stack) offers a powerful model, providing digital identities, frictionless payments, and more secure access to welfare benefits, which fuel transformative growth and inclusion. For countries that lack the necessary financial and technical resources to develop such a comprehensive approach, strengthening data infrastructure requires a strategic, phased approach that begins with a well-defined national data strategy tied to policy goals and guided by a needs assessment.

Building a strong data infrastructure requires significant technical, financial, and human capital investments, highlighting the crucial role of multilateral development banks and bilateral support. A 2020 assessment by the OECD underscores the shortfall in development data funding, a trend at odds with efforts to achieve the SDGs. The rise of AI as an economic driver demands a renewed focus on this issue. As discussed in Box 2, multilateral development banks and regional institutions are uniquely positioned to pool resources — financial, technical, and human — to effectively tackle this complex challenge.

Box 2

The role of multilateral development banks and regional institutions in supporting the AI transformation

For countries with limited financial and human capital, making the investments necessary to build a flourishing AI-powered economy presents a formidable challenge. Multilateral development banks and regional institutions therefore have a critical role to play in providing targeted funding, and supporting knowledge transfer through technical capacity building assistance.

There are numerous global and bilateral initiatives aimed at supporting lower income countries in their digital transformation. Given AI's emergence as a potentially key driver of economic development, these programs should be updated to ensure that in addition to overall digital transformation, they are tuned for the AI age and can empower countries to embrace and deploy AI strategically.

One potential novel approach: establish a regional or Global Resource for AI Research (GRAIR) that would pool financial, technical, and data resources across borders to help countries overcome resource constraints. If successful, the initiative could make AI accessible to many more of the world's entrepreneurs and scientists, enabling them to propel the technology forward, ensure it is more representative, and accelerate discoveries in other fields.

Inspired by successful models such as European Center for Nuclear Research (CERN) and the International Space Station (ISS), the GRAIR would be a collaboratively governed, multinational AI research infrastructure and research consortium working to ensure ethical development, equitable access, and the pursuit of AI applications that foster local innovation. A collective computing resource such as the GRAIR would also help to address concerns about AI's carbon footprint, as it would reduce duplicative efforts and environmental impact.

Structural Components

The proposed *GRAIR* would comprise three key elements. A cloud-hosted *Global Dataset Library* would feature diverse, curated, high-quality datasets, with continuous programs addressing representational gaps. A *Distributed Compute Network* would span data centers across multiple countries, particularly those currently lacking dedicated AI infrastructure, providing researchers worldwide with essential computational resources. An *Operations Team* would manage infrastructure, outreach programs, and user initiatives to ensure smooth functioning of the resource.

A *GRAIR* could undertake a range of activities, depending on the priorities of its members, including:

- Issue periodic requests for proposals (RFPs) that would allow researchers and organizations to apply for compute time.
- Solicit proposals focused on creating high-quality datasets where gaps exist, e.g. data related to low-resource languages and cultural knowledge.
- Support in-person or remote safety testing, evaluations, and red-teaming on AI models for locally relevant characteristics and development of associated benchmarks and testing suites.
- Support countries at different levels of development in building up domestic AI workforce capabilities, including application developers, tech entrepreneurs and researchers, through training and accreditation programs.

Game Changer 4: Promoting innovation through enabling regulation

As with any transformational technology, AI comes with complexities and risks. To date, there has been a strong and appropriate focus on addressing risks associated with AI. Governments worldwide are taking important steps together with companies and other civil society stakeholders to address and mitigate these risks, from the G7 Hiroshima Process Code of Conduct to the White House Executive Order on the Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence.

But the biggest risk that AI presents for emerging market economies — where the upside could be so significant — may be the risk of missing out on its potential. The United Nations recently emphasized that in addition to addressing *misuse* of AI, there are also "countervailing worries about *missed uses* — failing to take advantage of and share the benefits of AI technologies out of an excess of caution."

To fully harness AI's transformative potential, policymakers must focus not only on the harms they want to avoid and the risks they want to mitigate, but on the potential they want to achieve. This will require not only new enabling policies but also a new mindset toward how policy can support innovation. The challenge is to regulate AI in a way that is proportionately tailored to mitigate risks and promote reliable, robust and trustworthy AI applications, while still enabling innovation and the promise of AI for societal benefit.

Based upon analysis of the global AI regulatory landscape and its impact on AI development, there are four key steps that policymakers in emerging markets can pursue to ensure AI is widely and inclusively deployed:

(1) ensure that regulators are taking a risk-based and proportional approach to govern AI products and services;
(2) support privacy and copyright frameworks that enable use of publicly available information while respecting legitimate rights;
(3) support and contribute to the development of international technical standards for AI, and recognize such standards in the regulatory context; and
(4) adopt and implement a national AI strategy focused on harnessing AI to achieve major public objectives.

First, given that AI is a multi-purpose technology that can be deployed in a vast array of contexts with vastly different risk profiles, policymakers should adopt a risk-based and proportional approach to govern the development of AI products, services, and applications. A risk-based approach to AI regulation is crucial to provide clarity to developers, deployers, and regulatory agencies about which uses are disallowed, and to encourage alignment around addressing the most severe concerns related to AI. This also allows regulators to identify which parties (developers, deployers, or users) are most likely to have control over harm prevention and mitigation and therefore should be held accountable.

A risk-based approach can be paired with a distributed model for governing AI that ensures that agencies with expertise in issues like financial services, health care, and energy can address sector-specific AI risks and opportunities. Countries such as the UK, US, and Singapore have taken helpful steps to empower regulators to use existing authorities to regulate within their jurisdictions, based on the particular risks that AI-powered products or services might present.

Second, given the importance of data to AI development, it is critical to ensure that regulations impacting access and use of data — such as copyright and privacy frameworks — enable the use of publicly available information while respecting legitimate rights. Several countries have taken important steps to develop copyright systems that support innovation and creativity, including through

limitations and exceptions that protect developers's ability to train AI models on publicly available data. And the presence of an AI innovation-friendly copyright framework has become a strong predictor of whether a country will be a leader on AI.

Similarly for privacy, it is important both to safeguard individuals' personal data and to preserve the ability of AI systems to process publicly available data. Policymakers can strike this balance by supporting privacy by design principles and privacy preserving technologies in AI systems, and giving individuals appropriate notice and controls related to their personal data in AI system outputs. And for copyright and privacy frameworks to strike the right balance between innovation and protection of legitimate rights, governments should ensure that users, scientists, innovators, researchers, and creators using AI tools are fully represented within the policymaking process.

Third, given the cross-border nature of AI governance, it is important for emerging market governments, researchers, and companies to play a strong role in the development of international technical standards for AI. Policymakers should both encourage participation by a wide range of stakeholders in the AI standard-setting process and promote the use and recognition of these international standards by industry and regulators. Aligning around international AI standards helps avoid fragmentation and creates a common baseline for domestic regulatory approaches, so that where a business is required to show its compliance with a regulation, it can do so by showing adherence to a common standard — rather than having to meet a bespoke requirement.

Finally, to ensure that there is a whole-of-government strategy to reaping the economic and social benefits of AI while mitigating potential risks, emerging market policymakers should adopt and implement a national AI strategy focused on harnessing AI to achieve major public objectives. Leading by example, nations like Chile, Turkiye, the UAE and Uruguay have published such strategies, providing clear frameworks for AI development and governance.

A comprehensive AI strategy should establish national priorities, align AI development with societal goals, and outline ethical and responsible AI guidelines. Additionally, it should address investments in AI research and development, talent cultivation, and public-private partnerships for AI innovation.

Beyond these substantive areas, governments should seek to obtain a clear view of the existing regulatory landscape within their jurisdictions by undertaking holistic audits of regulations relevant to AI across the ecosystem. Such a survey will be helpful to identify both regulatory gaps and areas of overlap or inconsistency that can impede innovation.

Conclusion

The stakes for emerging markets in embracing AI are immense. Failure to adopt this transformative technology risks widening the digital divide and hindering progress towards critical development goals. Conversely, success in harnessing AI offers the potential to overcome legacy challenges, accelerate innovation, and improve the lives of millions.

The Digital Sprinters framework offers a solid foundation for emerging markets to embrace AI, but fully realizing the technology's benefits will require a concerted, collaborative effort. Governments can catalyze AI adoption by fostering innovation-friendly policies, investing in robust digital infrastructure, and working with civil society and academia on comprehensive skill-building initiatives. The private sector, particularly tech companies, can drive innovation, collaborate on tailoring solutions to local needs, and provide essential technical expertise and resources. Finally, multilateral and regional institutions can provide crucial support through funding, research collaboration, and capacity-building programs.

Emerging markets have a critical role to play in shaping how AI evolves. We hope that this report serves as a springboard for a vital conversation. We invite governments, businesses, and civil society to engage in a collective effort — to determine how best to prepare for and leverage AI as a powerful tool for a more prosperous and inclusive future for all.

AI Sprinters: Capturing the economic opportunity of AI in emerging markets

A Digital Sprinters report

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