Foreword

We live in an exciting and challenging time in the history of technology, in which we already see how Artificial Intelligence (AI) is transforming the entire world. AI offers huge potential to accelerate human progress, enhance socio-economic growth, and solve global environmental problems, while at the same time, it raises new ethics challenges across different levels of society.

In recent years, many countries have been actively designing public policies and establishing national AI strategies to stay competitive in this new era of AI while others are in the process of developing their own roadmaps. The developed AI strategies vary across societies and economies according to their national priorities.

The adoption of AI in these countries will create winners and losers, shaping a new landscape of developed and developing nations. Considering these rapid AI advancements and the global AI race among countries, it is highly recommended to establish a national AI strategy for Morocco that involves diverse stakeholders from all parts of society. Embracing such an inclusive and co-construction approach will allow for the development of an AI roadmap that integrates the priorities outlined in Morocco's New Development Model (NDM).

Through this report, MoroccoAI has formulated key recommendations towards developing an AI strategy for Morocco, with the objective of leveraging this disruptive technology to enhance the well-being of citizens, foster socioeconomic growth and innovation, and embrace regional competitiveness. The report also identifies key areas where AI can address national challenges and outlines recommendations to support AI development in Morocco.

Outline

Preliminaries

Recommendations

Preliminaries

Preliminaries

Morocco is a country with stunning landscapes, rich and diverse culture, nice weather and warm hospitality. Its dynamic art, music, and cuisine, coupled with its thriving history and modernity, make it a place of originality and openness. Over the last two decades, the kingdom has made significant progress in terms of infrastructure, and there have been several initiatives to foster innovation, entrepreneurship, as well as digital economy.

As we enter the new wave of AI, particularly with the emergence of generative AI, Morocco is well-positioned to become a pioneer nation in the region and an evolving power in AI development and adoption. By building on its strengths in infrastructure, location, culture, and human capital, Morocco has the potential to drive its economic growth and social development through the power of AI. To achieve this, it is necessary to capitalize on existing national AI strategies, adapting them to the national context and exploring how AI can contribute to the objectives outlined in the Morocco's New Development Model.
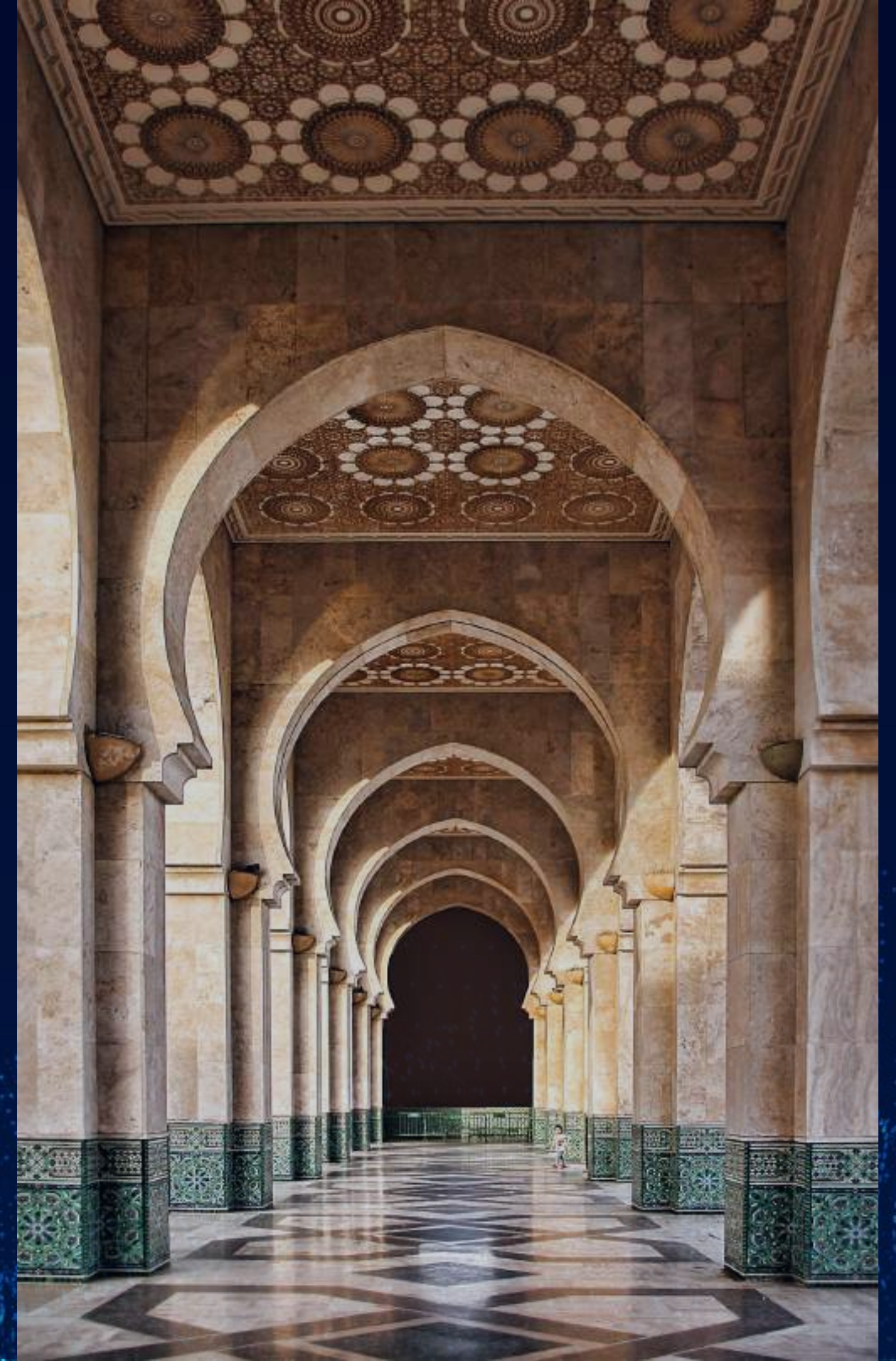
What is AI ?

The concept of AI is hard to define since it includes various methods, technologies, applications and schools of research. To make it simple, AI can be defined as devices, software and systems that are capable of performing human-like cognitive tasks like perceiving, learning, solving problems, and making decisions. This definition is chosen to remain neutral and inclusive, involving techniques that are currently unknown or in the process of development.

Although AI might seem like a new phenomenon, its origin can be traced back to ancient times. Humans tried since a long time to design automata and mechanical devices that mimic human behavior. However, the field of AI has not transformed into a formal scientific discipline until the mid-50th century, mainly due to the contributions of numerous computer scientists representing various AI schools including symbolists, connectionists and bayesians. During this period, the development of AI experienced rises and falls.

> "
> *As soon as it works, no one calls it AI anymore*
>
> **John McCarthy**

What is AI ?

Initially conceived to mimic human intelligence, AI has evolved over time in a way that differs from its original conception. The discussion about AI has shifted towards practical applications across nearly every sector, making an impact in people's daily lives. The key factors behind these unexpected achievements were mainly the increase in computing power, explosions in data, and improvements in algorithms that led to the rapid development of a new generation of AI that has impacted entire economies and societies.
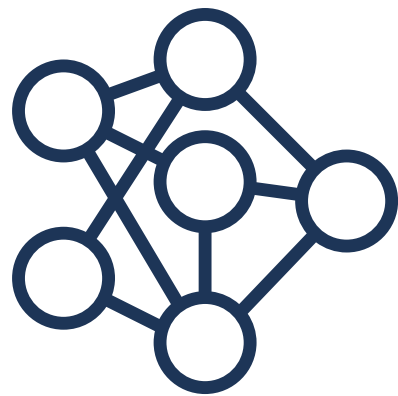
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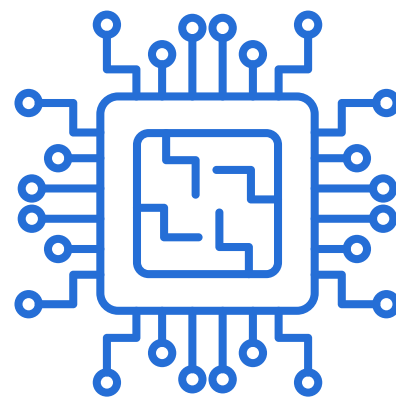
Computing Power
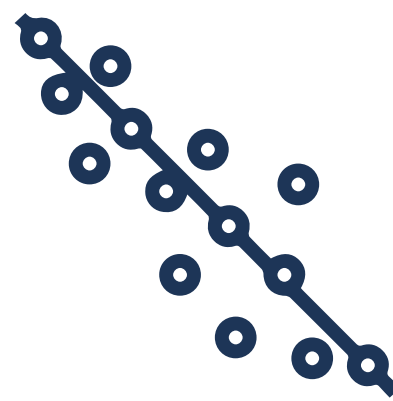
Algorithms

Digital evolution in Morocco

1995
Internet Introduction

Morocco has continuously proven its commitment to adopt and embrace technological advancements. The kingdom has made significant progress over the past three decades in the digital sector. In 1995, Morocco introduced a liberalization's policy and established its first internet connection, allowing accessibility to internet for its citizens.

A year later in 1996, the kingdom launched the program "Maroc compétitif" dedicated to improve national competitiveness in the Information Technology (IT) sector.

1996
The "Maroc compétitif" program

1998
Creation of State Secretary for Telecom & IT, and of the ANRT

In 1998, a State Secretary assigned to the prime minister has been established for the first time in Morocco, and was charged of the Post and Telecommunications and Information Technologies. In the same year, the National Telecommunications Regulatory Agency (ANRT) was born to regulate and control the telecommunications sector.

2001

"e-Maroc": first national Digital Strategy

In 2001, Morocco launched its first national Digital Strategy, called "e-Maroc", which aimed to modernize public administration and promote the development of e-commerce. This was followed by the "e-Maroc 2010" program in 2005, which aimed to make the kingdom a regional leader in IT and promote the use of technologies across all sectors.

In 2008, the "Maroc Numeric 2013" program was launched to support the development of the digital economy and promote innovation and entrepreneurship.

2008

The "Maroc Numeric 2013" program

2009

CNDP Established

In 2009, the National Commission for the Protection of Personal Data (CNDP) was established.

2011
The establishment of the DGSSI

The creation of the General Directorate of Information Systems Security (DGSSI) in 2011.

In 2016, the "Maroc Digital 2020" was initiated to supplement the achievements of "Maroc Numeric 2013".

2016
THE "Maroc Digital 2020" initiative

2017
The creation of ADD

The creation of the Agency for Digital Development (ADD) in 2017

The establishment of a dedicated Ministry of Digital Transition in 2021

2021
Ministry of Digital Transition

State of AI in Morocco

In terms of development and adoption of AI, Morocco has made some progress, mainly through the establishment of academic institutions, hosting international conferences, implementing effective training and educational programs, and setting up large-scale data centers.

Recognizing those initiatives is undoubtedly important and they should be expanded and replicated for further progress. However, the primary purpose of this report is not to highlight specific "bottom-up" initiatives, that are supported by local stakeholders and communities.

Instead, the methodology of this report consists of adopting a comprehensive approach that is based on internationally recognized measures and benchmarks. This enables to assess Morocco's advancements in AI, identify areas that require further development, and ultimately determine its position on the international stage as a significant player in AI.

Various benchmarking tools are available to evaluate the readiness of countries in the field of AI. In this report, we have examined three of the most robust methodologies: the Global AI Index by Tortoise, the Government AI Readiness Index by Oxford Insights, and the Scimago Journal Ranking. Our analysis aims to evaluate the state of AI in Morocco based on essential factors that foster AI advancements.


Government AI Readiness Index 2022

Tortoise — The Global AI Index

SJR — Scimago Journal & Country Rank

Global AI Index

The Global AI Index measures the national ecosystems on which the creation and use of AI depends, considering factors such as investment, innovation and implementation levels.

The Global AI Index is supported by 111 indicators, collected from 28 different public and private data sources, as well as 62 governments. These indicators are categorized into 7 sub-pillars: Talent, Infrastructure, Operating Environment, Research, Development, Government Strategy and Commercial. Additionally, the global index encompasses two other parameters: the scale that measures a nation's absolute AI capacity and the intensity that assesses AI capacity relative to the size of a country's population or economy.

The scores derived from this dataset show that the leading countries are the United States, China, and Singapore. In Africa, Egypt is the country that is making the most rapid progress in AI development, with its position of 52th worldwide. Morocco holds the 57th position globally and ranked the 4th in Africa, following Egypt, South Africa and Tunisia.

#4 Morocco

#3 Tunisia

#1 Egypt

#6 Kenya

#5 Nigeria

#2 South Africa

12
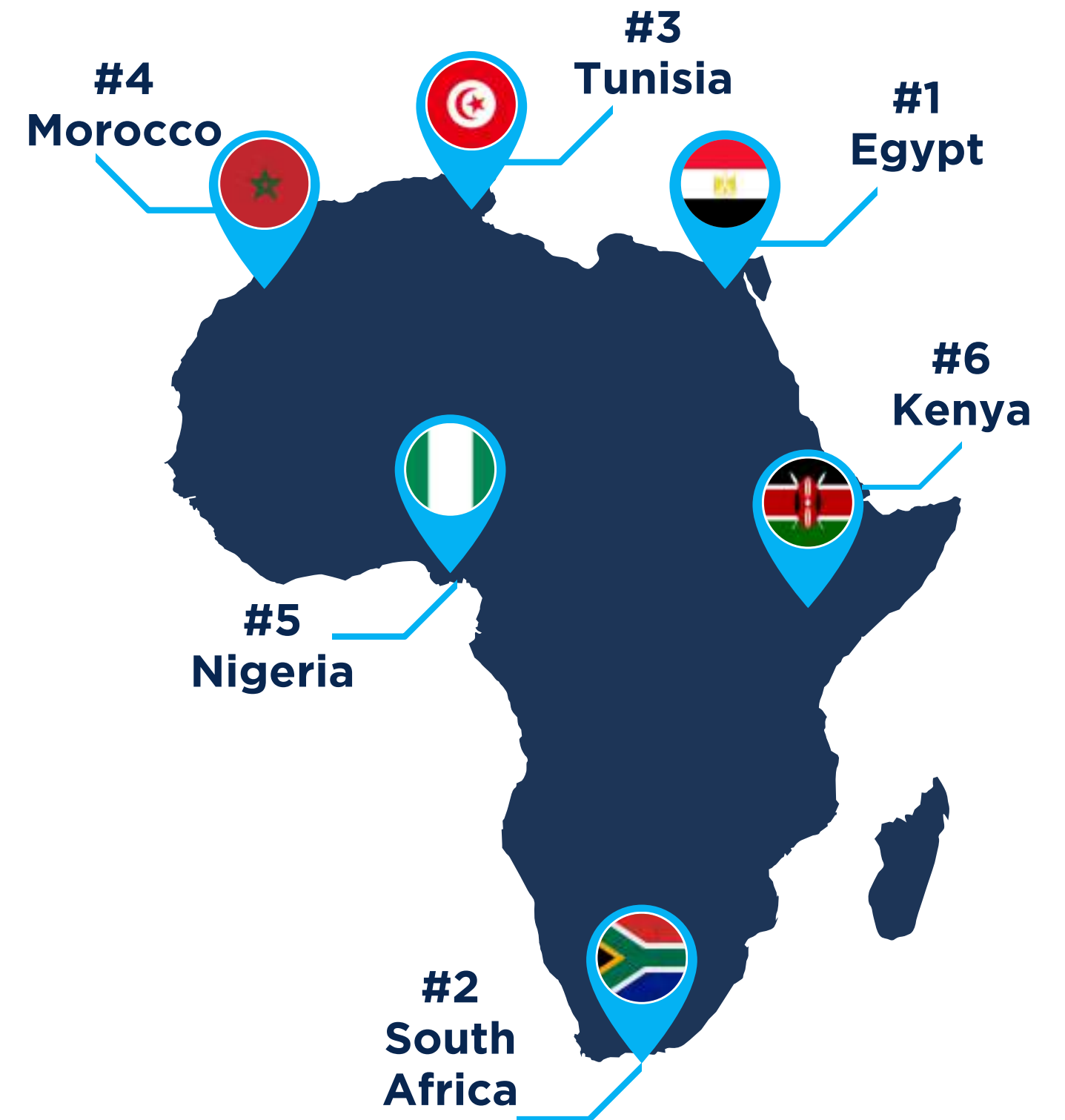
Global AI Index

Morocco

Score: 13.6   Rank: 57

According to this index, Morocco is well positioned in terms of its infrastructure, securing the leading position in Africa. This infrastructure includes consistent electricity supply and high-speed broadband connectivity in cities, smaller towns and rural areas, while more advanced infrastructure includes supercomputing capacity.

Additionally, Morocco attains a favorable position in the operating environment, securing the 2nd rank in Africa, just after South Africa. This operating environment takes into account aspects such as trust in AI and practitioner diversity which contribute to facilitating AI development.

However, other parameters such as talent, research and development require further efforts to achieve an even stronger positioning.

9.1%	52.7%	73.1%
Talent	**Infrastructure**	**Environment**
2.4%	0.1%	16.4%
Research	**Development**	**Government**
0.7%	12.1%	15.1%
Commercial	**Scale**	**Intensity**
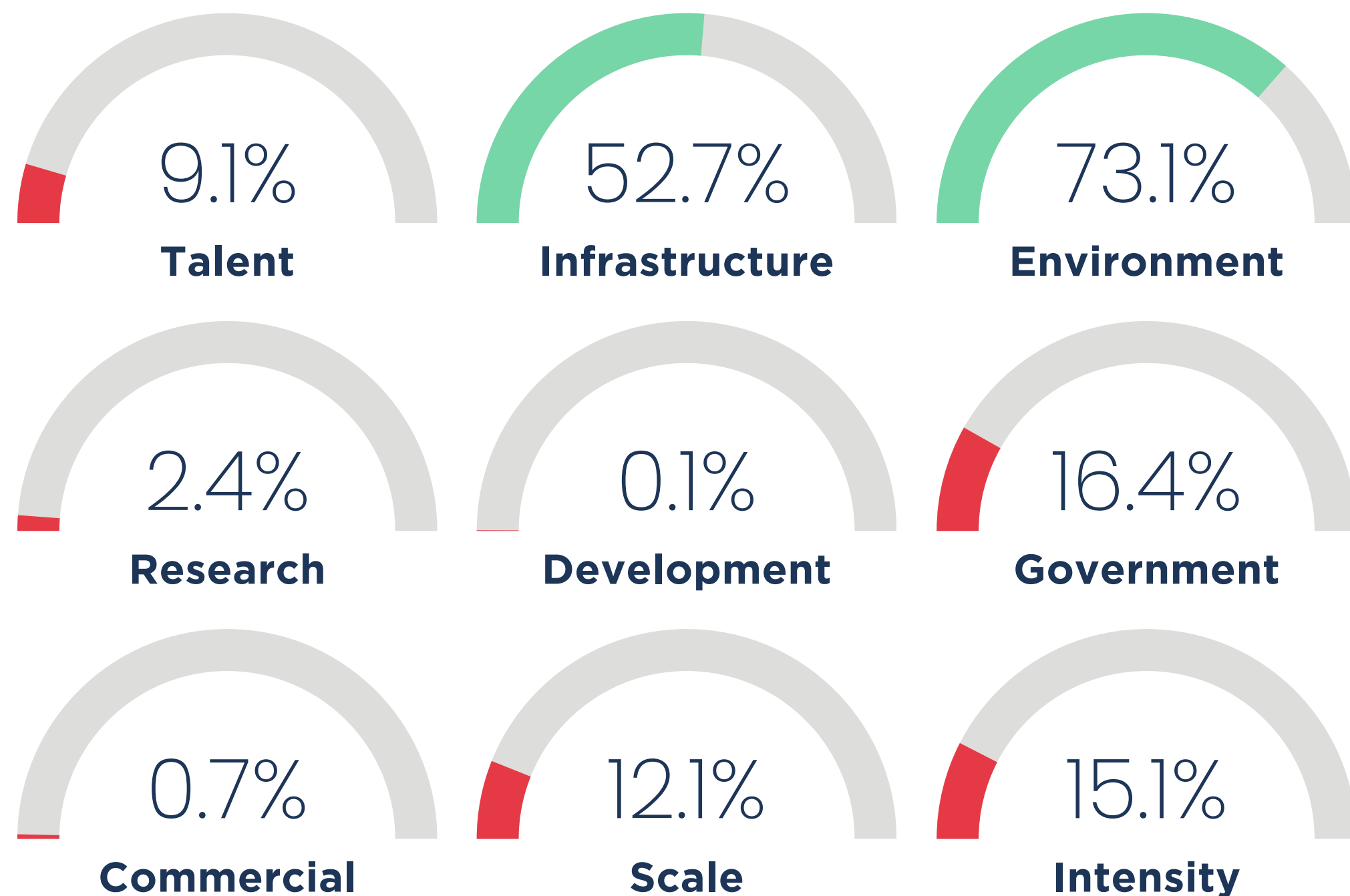
Government AI Readiness Index

The Government AI Readiness Index is the second tool used in this report to assess Morocco's readiness in the field of AI. This index focuses on evaluating the readiness of governments to implement AI in the delivery of public services to their citizens. The index covers three key pillars: government, which explores the government's AI vision and capacity, the technology sector, which looks at the supply of tools and human capital needed to drive AI development, and data and infrastructure, which looks at the inputs needed for development.

In terms of this index, the leading countries are United States, Singapore and United Kingdom as most-prepared nation to implement AI in the public sector.

Morocco holds the 87th position globally and the 5th in Africa, following Mauritius, Egypt, South Africa, and Tunisia. Notably, Mauritius and Egypt have already established national AI strategies, while Tunisia has announced the development of its AI strategy.

#5 Morocco

#4 Tunisia

#2 Egypt

#6 Kenya

#7 Rwanda

#8 Seychelles

#3 South Africa
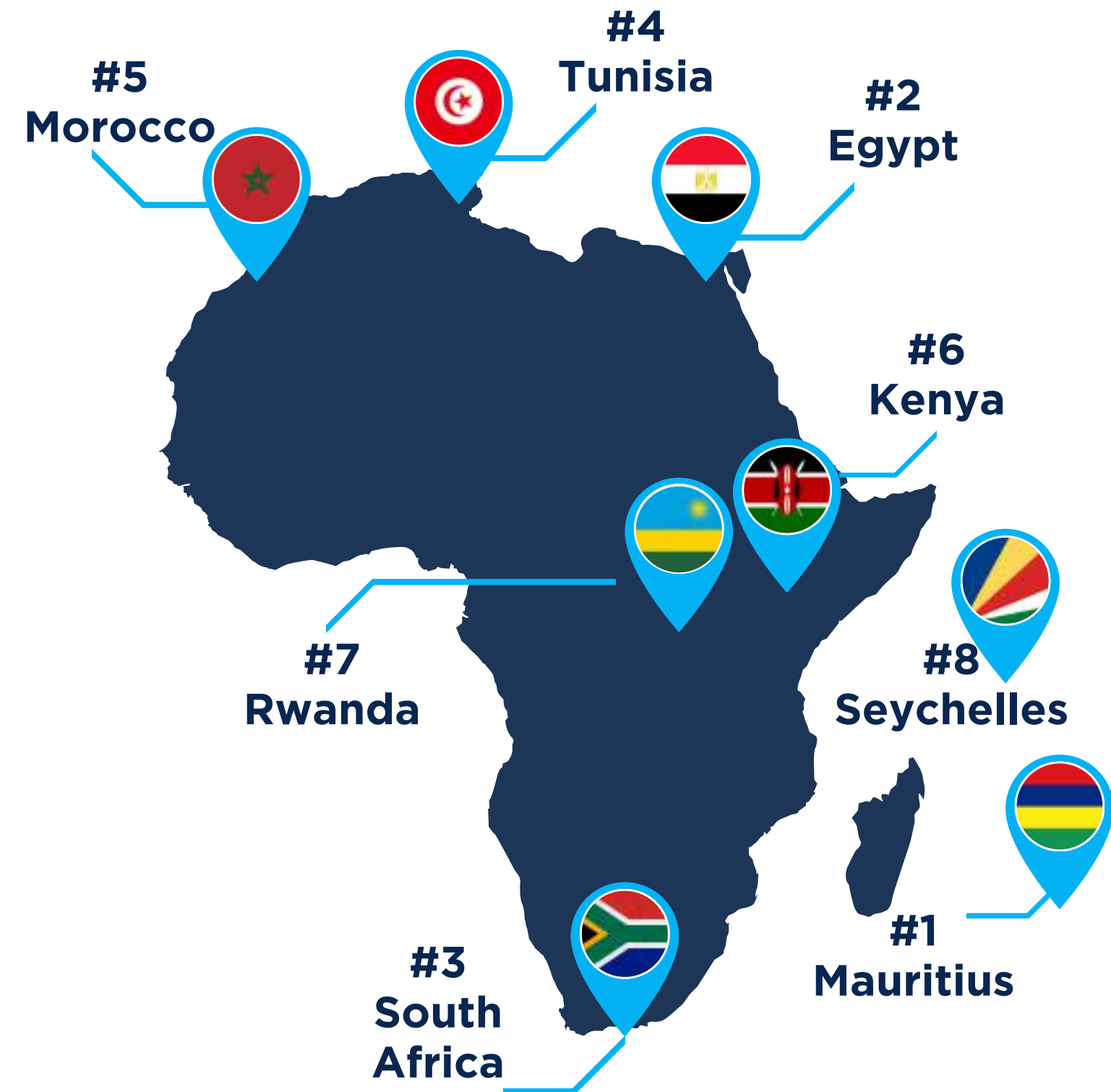
#1 Mauritius

Government AI Readiness Index : Government

When evaluating the readiness of "Government" for AI, the leading countries are Singapore, Finland, and the Republic of Korea. In Africa, Mauritius stands as the leading country holding the 48th global position, followed by Egypt, Rwanda, and Tunisia.

To enhance Morocco's global ranking at 105 and its African ranking at 14, strategic recommendations are advised. Firstly, the formulation of a national AI strategy is crucial, given its impact on the Government indicator. In terms of Governance & Ethics, establishing ethical principles through a charter and revising cybersecurity and privacy laws to address AI-related risks is crucial. Boosting digital capacity requires government-led investment in emerging technologies and the expansion of online services. Lastly, improving government adaptability requires enhanced responsiveness to change and modernized data procurement practices.

45.1%
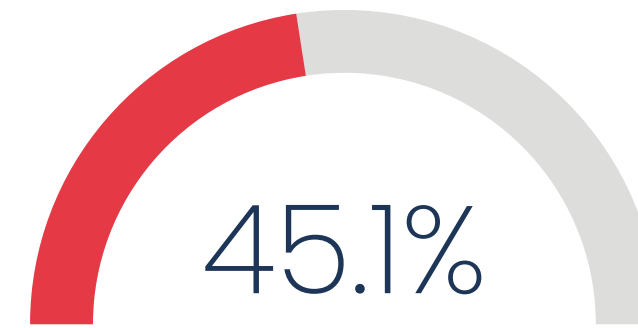
Digital Capacity
Global Rank : 106

41.6%
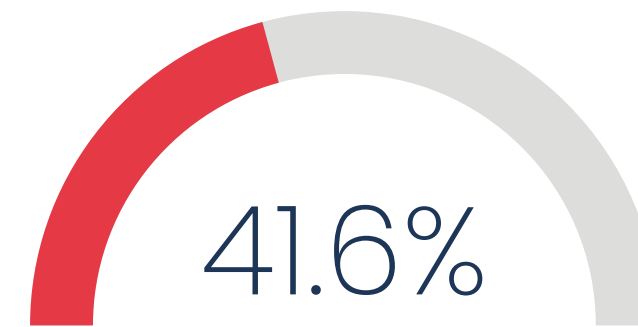
Adaptability
Global Rank : 109

52.5%
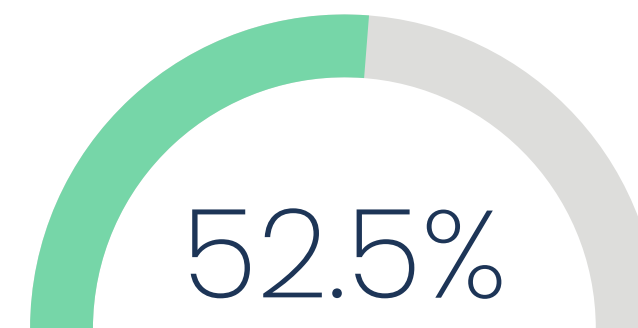
Governance & Ethics
Global Rank : 71

Government AI Readiness Index: Technology sector

In terms of "Technology Sector" readiness for AI, the leading countries include the United States, Singapore, and the United Kingdom. In Africa, South Africa leads, positioned at 53 globally, followed by Egypt, Rwanda, and Tunisia.

To improve Morocco's global ranking at 70 and its African ranking at 4, strategic recommendations are essential. Elevating computer software spending and fostering the growth of unicorns are crucial for maturity. Strengthening innovation capacity involves increasing Venture Capital availability, boosting Research & Development investment, and promoting emerging technology engagement by companies. Developing human capital calls for nurturing digital skills, expanding STEM or computer science graduates, with a focus on gender representation.

20%
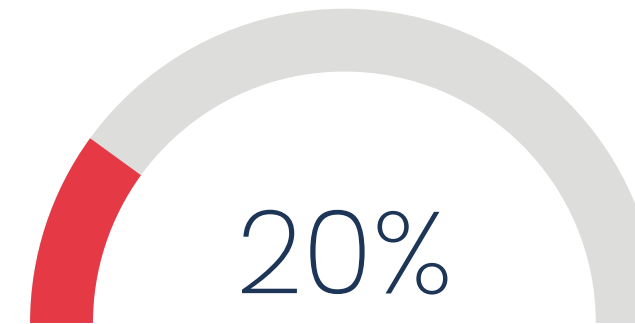
Maturity
Global Rank : 95

39.5%
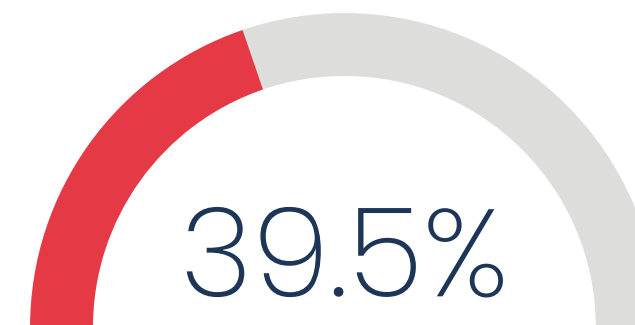
Capacity Innovation
Global Rank : 64

42.5%
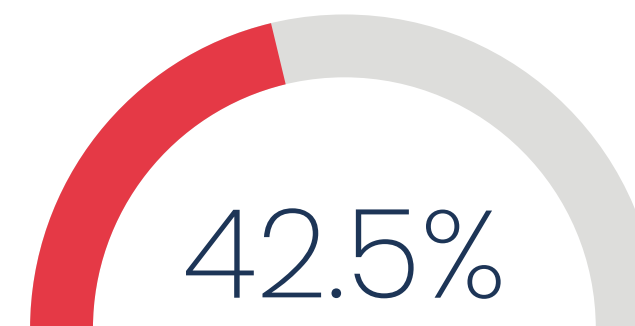
Human Capital
Global Rank : 75

Government AI Readiness Index : Data and Infrastructure

When assessing the readiness of the "Data & Infrastructure" for AI, the leading countries are Singapore, Australia and New Zealand. In Africa, South Africa stands as the leading country holding the 56th global position, followed by Mauritius, Morocco and Seychelles.

To enhance Morocco's global ranking at 79 and its African ranking at 3, strategic recommendations are advised. In terms of Infrastructure, Morocco has made great efforts in terms of Telecommunication infrastructure and needs much effort in Cloud providers. In term of Data Availability, more efforts need in open data and data governance in general In term of Data Representativeness, Morocco has made efforts in internet access and connectivity and needs to generalize it in some zone like rural areas.

48.2%
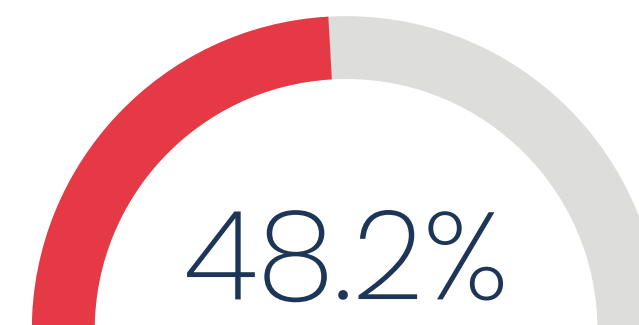
Infrastructure
Global Rank : 67

49%
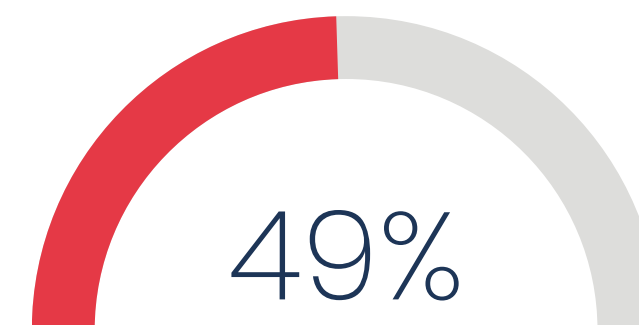
Data Availability
Global Rank : 107

68.1%
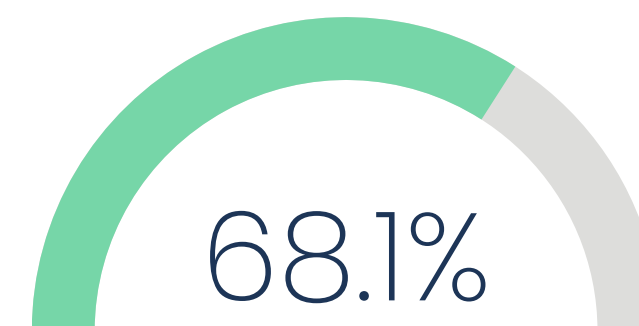
Data Representativeness
Global Rank : 105

Scimago Journal Rank

A third index has been employed for assessment, with a notable emphasis on research, which serves as the foundational pillar for the innovation and advancement of countries in the field of AI. According to this index, Morocco has produced more than 4500 publications in the field of AI between 1996 and 2022, which made it among the top 3 Countries Leading in AI Research in Africa after Egypt and South Africa. Algeria, Tunisia, and Nigeria followed with 4401, 4301, and 1788 AI-related publications over that period, respectively.

It's important to highlight that this comparison in terms of research is not complete, as it solely relies on the number of publications as an indicator, without incorporating other crucial metrics such as citations and the H-Index. This approach based on search results is simply suggestive and requires the integration of various additional metrics for a thorough and holistic comparison.

SJR - Country Rank in Africa
Number of publications
1996 - 2022
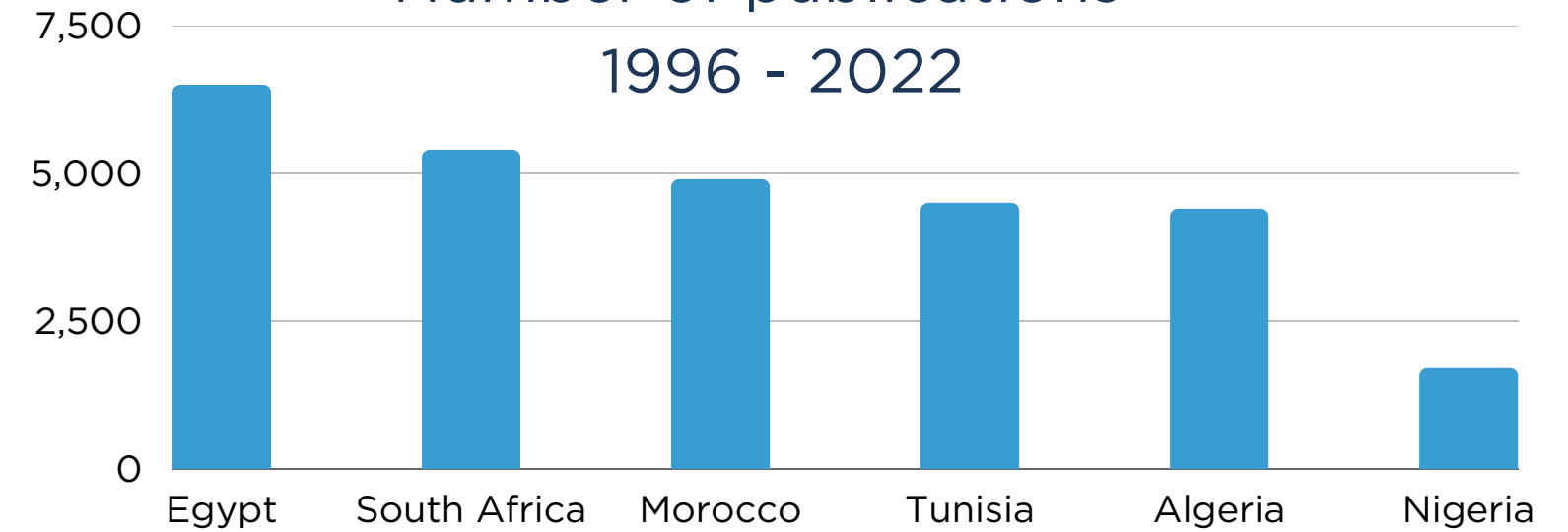
SJR - Country Rank in Africa
Number of publications
5 Last Years
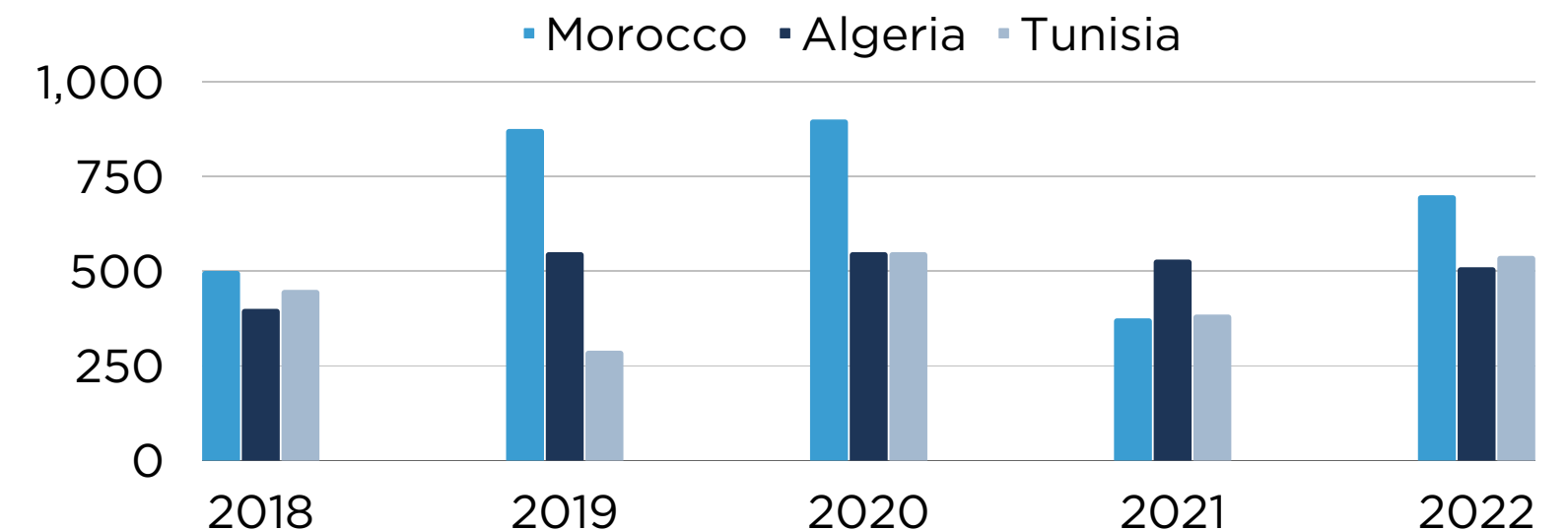
National AI strategies

AI is advancing at a rapid pace, and various countries around the world are recognizing its potential to drive socioeconomic growth, and improve the quality of life for their citizens. As a result, numerous countries have developed their own national AI strategies to ensure they remain competitive in this new era of AI. Despite variations in national values, culture, economic structures, institutions, and histories, the content of these national AI strategies includes a number of common themes.

Our study captures a range of national AI strategies from around the world belonging to the five continents of the world: Africa (Egypt, Mauritius), Asia (China, India, Singapore, South Korea, Turkey, Saudi Arabia, Jordan), Europe (UK, France, Italy, Germany, Spain), America (United States, Canada), Oceania (Australia).

Current AI strategies can be divided into two broad groups: Funded Strategies that are fully financed and outline specific policies and Guiding Strategies that present objectives to guide future policymaking. Of the 17 strategies presented in this report, 9 are funded and 8 are guiding.

17
National Strategies

9
Funded Strategies

8
Guiding Strategies

The United States
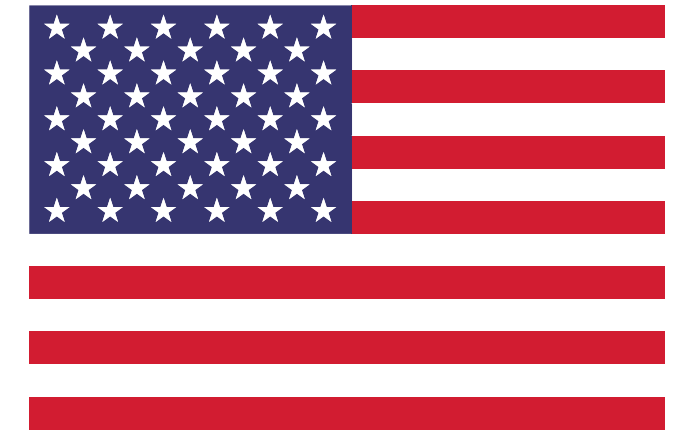
The United States publishes every year a white paper outlining its priorities in terms of AI since 2016. The first paper released in 2016 was called "National Artificial Intelligence Research and Development Strategic Plan". The document focused on four key areas : research and development, workforce and education, ethics and governance, and international considerations. The AI strategy was seen as a new Apollo lunar landing plan, with the hope that the United States could possess the same dominance in the field of AI as it did in the Internet age.

Date	Title	Entity	Key Objectives	Funded/ Guiding
2016	National Artificial Intelligence Research and Development Strategic Plan	National Science and Technology Council (NSTC)	• Increased economic prosperity • Improved educational opportunity and quality of life • Enhanced national and homeland security	Guiding Strategy

Canada

While the United States led the way in introducing its national AI priorities, Canada was the first country to release an official AI Strategy called the "Pan-Canadian Artificial Intelligence Strategy" in 2017. The strategy was coordinated by the Canadian Institute for Advanced Research (CIFAR) and aimed to set-up a national AI research network in Canada, have a strong participation in the global debate regarding the economic, political, ethical and legal consequences of AI and transform AI research into real applications for both public and private sectors.

Date	Title	Entity	Key Objectives	Funded/ Guiding
2017	Pan-Canadian Artificial Intelligence Strategy	Canadian Institute for Advanced Research (CIFAR)	• To set-up a national AI research network; • To be a global leader in the international debate regarding the economic, political, ethical and legal consequences of AI; • To transform AI research into applications for both public and private sectors.	Funded Strategy US$ 95 Million

China

China announced its ambitious AI strategy in 2017 to lead the world in AI by 2030. Its national AI strategy, called "Next Generation Artificial Intelligence Development" elaborated by the Chinese Ministry of Industry and Information Technology, focused on initiatives related to Research, industrialization, talent development, education and skills acquisition with the objective to increase the AI industry's value to $150 billion.

Date	Title	Entity	Key Objectives	Funded/ Guiding
2017	A Next Generation Artificial Intelligence Development Plan	The Chinese Ministry of Industry and Information Technology	• By 2020: To catch up with the USA in the field of Artificial Intelligence • By 2025: To achieve bigger breakthroughs and take on a leading role in relation to specific AI applications • By 2030: To lead the world in research, development and application of AI. For the national AI industry (target market value of 150 billion dollars) to make a major contribution to added value in the country	Guiding Strategy

India

India's national AI strategy, released in 2018 by the National Institution for Transforming India, focused on using technologies to ensure social and economic development, inclusion and positioning the country as a leader in AI on the global scale. The plan sought the establishment of an "AI Garage" incubating AI solutions that can be extended to the rest of the developing world.

Date	Title	Entity	Key Objectives	Funded/ Guiding
2018	National Strategy for Artificial Intelligence #AIforAll	NITI (National Institution for Transforming India) Aayog: a policy think tank of the Government of India	• Positioning India as a global AI leader • Leveraging AI for social and economic development as well as the improvement of well-being • incubating AI solutions to the rest of the developing world	Guiding Strategy

Singapore

Singapore unveiled its strategic plan in 2017 through the National Research Foundation (NRF) with the primary objectives of investing in the next wave of AI research, addressing major societal and economic challenges, as well as expanding adoption and use of AI in industry.

Date	Title	Entity	Key Objectives	Funded/ Guiding
2017	AI Singapore	National Research Foundation (NRF)	• Expanding national expertise in the field of Artificial Intelligence in the name of social and economic progress • Supporting AI experts and creating an AI-assisted economic system • Promoting industry-focused research into smart city applications (relating to life, transport, health, etc.)	Funded Strategy US$ 91,5 Million

South Korea

South Korea's strategy, released by the Government of the Republic of Korea in 2018, aimed to transform the country into a strong AI player globally, with the puropose of catching up with the United States and China.

Date	Title	Entity	Key Objectives	Funded/ Guiding
May 2018	Artificial Intelligence R&D Strategy	the Governement of the repblic of Korea	• Transform South Korea into an AI leader at the global scale and catching up the US and China in AI capabilities	Funded Strategy US$ 1,95 Billion

Turkey

Turkey's strategic approach, introduced in 2021 by the National Artificial Intelligence Strategy (NAIS), is characterized by primary goals, which cover augmenting AI's contribution to the gross national product to 5%, recruiting 50,000 professionals within the AI sector, incorporating 1,000 of them within governmental bodies, centering AI applications on commercial prospects and addressing local ecosystem requirements.

Date	Title	Entity	Key Objectives	Funded/ Guiding
2021	National Artificial Intelligence Strategy (NAIS)	the Digital Transformation Office (DTO) of the Turkish government	• Improving AI's contribution to the gross national product to five percent • Hiring 50,000 employees in the AI field with 1,000 in government institutions • Participating actively in the international research and standardization process on development and use of responsible AI.	Guiding Strategy

Saudi Arabia

Unveiled in 2020 by the Saudi Data and AI Authority (SDAIA), Saudi Arabia's strategic blueprint outlined essential aims, with immediate attention in 2021 directed towards fulfilling the nation's pressing requirements aligned with Vision 2030's national priorities. By 2025, the plan aims to establish the groundwork for securing a competitive edge in pivotal specialized domains. Looking ahead to 2030, the strategy strives for international prominence, positioning Saudi Arabia as a prominent global economy that effectively leverages and exports Data and AI capabilities.

Date	Title	Entity	Key Objectives	Funded/ Guiding
2020	National Strategy for Data & AI	The Saudi Data and AI Authority (SDAIA), which reports directly to the Prime Minister and consists of members chosen by the Prime Minister	• 2021: Address KSA's urgent needs along national priorities set by vision 2030 • 2025: Build the foundations for competitive advantage in key niche domains • 2030: Compete on the international scene as a leading economy utilizing and exporting Data and AI	Guiding Strategy

Jordan

Unveiled in 2023 by the Ministry of Digital Economy and Entrepreneurship, Jordan's strategic roadmap outlines primary goals which encompass positioning the country as a forefront competitor in AI within the region. The plan also aims to establish a distinctive and appealing technological and entrepreneurial ecosystem, where AI assumes a pivotal and supportive role, seamlessly integrating into the national economy.

Date	Title	Entity	Key Objectives	Funded/ Guiding
2023	Jordan's Artificial Intelligence Strategy and Implementation Plan	Ministry of Digital Economy and Entrepreneurship	• Make Jordan a regional leader in AI • Create a unique and attractive technological and entrepreneurial environment where AI can be effective, supportive, and an integral part of the national economy	Guiding Strategy

United Kingdom

The United Kingdom's AI strategy, released in 2017 by the government, focused on ensuring the UK becomes a world leader in AI and harnessed the technology for economic growth and societal benefit. The plan outlined four key pillars: developing AI research and innovation, growing the AI industry, ensuring the UK's talent pipeline, and ensuring the responsible use of AI.

Date	Title	Entity	Key Objectives	Funded/Guiding
2018	Industrial Strategy : Artificial Intelligence Sector Deal	Committee selected by UK's House of Lords	• To establish the UK as an attractive high-tech location for start-ups and entrepreneurs • To expand the digital infrastructure • To promote and support AI-related collaborations	Funded Strategy US$ 1,24 Billion

France
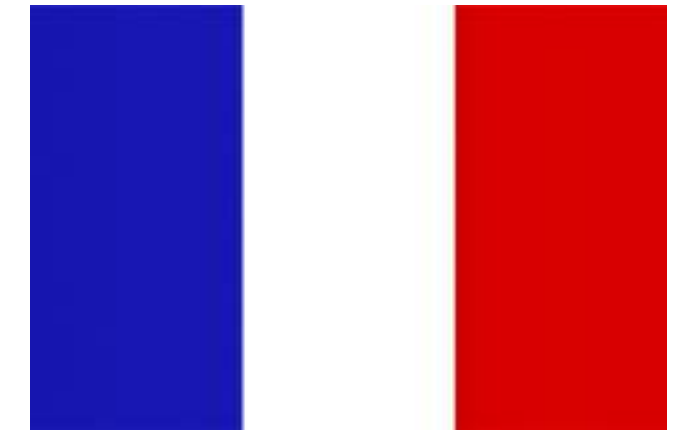
France announced a €1.5 billion strategy in 2018 to position itself as a global leader in AI. The plan focused on developing AI for economic and societal benefit while ensuring ethical and democratic values. The strategy is entitled AI for humanity and it focused on talent returning to work in France and developing sector-specific AI technology in areas where the state has large data stores.

Date	Title	Entity	Key Objectives	Funded/ Guiding
2018	France's Strategy for AI: AI for humanity	Villani's Commission	• Strengthening the AI ecosystem to attract talents; • Crafting an open data policy, particularly in sectors where France already has the potential for excellence, such as healthcare • Promoting AI regulation and ethics, to guarantee high standard and acceptability for citizens.	Funded Strategy US$ 1,75 Billion

Italy
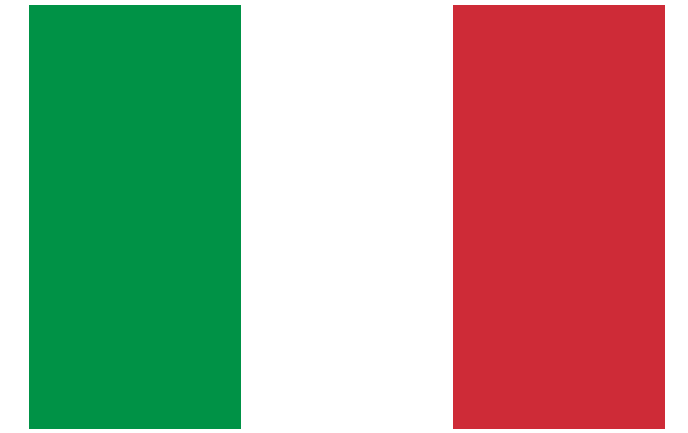
Italy's AI strategy was preceded by a the publication of a White Paper titled "AI at the service of citizens" in 2018 and a draft version of the strategy released in 2020. The final version of the Italian AI strategy was announced in 2021 by the Italian Ministry of Economic Development and included investments in education and research, the development of AI applications in key sectors, and the creation of a regulatory framework for AI.

Date	Title	Entity	Key Objectives	Funded/ Guiding
2018	RenAIssance	Ministry of Economic Development and Agency for Digital Italy (AgID)	• Development of AI for economic growth • Improvement of public services • Promotion of research and innovation • Creation of regulatory framework	Funded strategy: 888 million euros

Germany

Germany's national AI strategy under the slogan "AI for Germany", released on November 2018 after a white paper published on July 2018 that recommended the elaboration of an AI strategy for Germany. The strategy announced the establishment of a leading center for AI to help safeguard Germany's competitiveness, the responsible development and use of AI for the good of society, and the promotion of a broad societal dialogue and active political measures.

Date	Title	Entity	Key Objectives	Funded/ Guiding
2018	AI made in Germany	Federal Government: Ministry of Education and Research, the Ministry for Economic Affairs and Energy, and the Ministry of Labour and Social Affairs	• To make Germany and Europe a leading centre for AI and thus help safeguard Germany's competitiveness in the future • To ensure a responsible development and use of AI for the good of society • To incorporate AI in society in ethical, legal, cultural and institutional terms with the promotion of a broad societal dialogue and active political measures	Funded Strategy US$ 3 Billion

Spain

Spain's national AI strategy, released in 2018 by the Ministry of economic affairs and Digital Transformation, focused on investing in AI as integral component of the Spanish economy and generating trust in the development of inclusive AI that is aligned with the needs of citizens.

Date	Title	Entity	Key Objectives	Funded/ Guiding
2020	Spain AI Strategy	Ministry of Economic Affairs and Digital Transformation	• Generating trust in the development of inclusive and enduring AI that prioritize the needs of the citizens. • Promoting AI as an integral componenet of the Spanish economy via specific AI-focused initiatives at the national level, while aligning with EU policies.	Funded strategy: 888 million euros

Australia
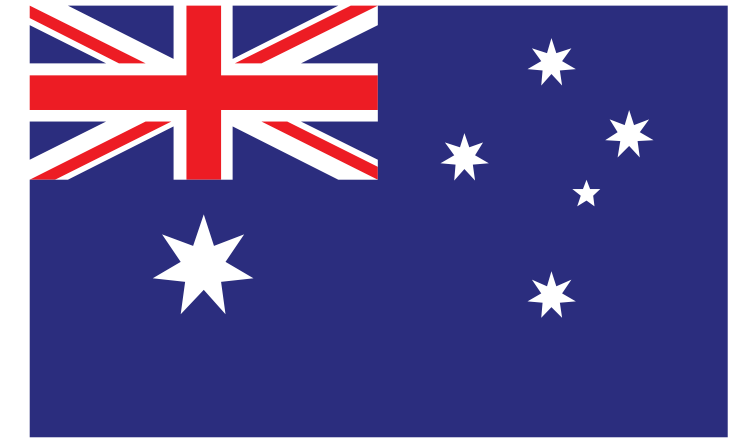
Unveiled in 2018 by the Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australia's strategic initiative delineates core aims which involve fostering a nationwide AI proficiency to enhance the productivity of the Australian industry, generate employment opportunities and economic advancement, as well as enhance the quality of life for present and forthcoming generations.

Date	Title	Entity	Key Objectives	Funded/ Guiding
2019	Australian Technology and Science Growth Plan	the Commonwealth Scientific and Industrial Research Organisation (CSIRO)	• Support the development of national AI capability to enhance the productivity of Australian industry, • Boost economic growth and improve the quality of life of citizens	Funded Strategy US$ 21,6 Million

Egypt

Published in 2021 by the National Council for Artificial Intelligence chaired by the Minister of Communications and Information Technology, Egypt's strategy aimed to benefit from AI to achieve the country's sustainable development goals, facilitate regional cooperation within the African and Arab countries, and place Egypt as an engaged international player in AI.

Date	Title	Entity	Key Objectives	Funded/ Guiding
2021	Egypt National Artificial Intelligence Strategy	The National Council for Artificial Intelligence is chaired by the Minister of Communications and Information Technology	• Achieve the country's sustainable development goals • Facilitate regional cooperation within the African and Arab countries • Place Egypt as an engaged international player in AI	Guiding Strategy

Mauritius

Published in 2018 under the auspices of the Secretary to the Cabinet, Mauritius' strategic blueprint delineated primary aims which involve harnessing the potential uses of AI, particularly by aligning current and novel AI solutions with specific sectors and domains that can contribute to the nation's economy. It also sought to underscore Mauritius' distinctive AI strengths, and to establish a conducive ecosystem for fostering AI within the country, with a concerted emphasis on cultivating collaborative communities.

Date	Title	Entity	Key Objectives	Funded/ Guiding
2018	The Mauritius Artificial Strategy	The Secretary to the Cabinet	• The potential applications of AI, in particular by matching the existing and new AI solutions to specific sectors and areas which could be of benefit to the economy • The unique selling point of Mauritius in terms of AI, • The appropriate ecosystem to nurture AI in Mauritius with focus on building collaborative communities.	Guiding Strategy

National AI Strategies

Just like any assessment that involves a close review of documents released by governments, this report is limited in qualitative insights of technological, geopolitical, and strategic aspects. Government strategies may not reveal the full range of applications that are under consideration or even changes in strategy resulting from new, non-public information accessible to the government.

The development of each national AI strategy has its own story. Some countries started with a white paper that outlines recommendations, followed by a comprehensive AI strategy with specific goals, objectives, and funding. Conversely, certain AI strategies focus primarily on overarching policies, forming the foundation for subsequent roadmaps or action plans. The execution of these strategies also varies across nations, ranging from national councils and steering committees to inter ministerial agencies or commissions.

It is also important to highlight that several nations that launched their AI strategies early are now progressing to the second phase. A good example is Canada which was the first country to publish its AI strategy and continues to showcase leadership by announcing the second phase of its Pan-Canadian AI Strategy. Supported by an investment exceeding $443 million from Budget 2021, this new phase aims to bridge top-tier talent and advanced research capabilities with commercialization and adoption, ensuring that Canadian knowledge and innovations are effectively harnessed within the country.

Unlocking the power of AI in Morocco

Morocco has made real progress in many areas and has achieved major benefits over the last few decades. At the same time, it is facing a couple of complex challenges on its path towards development.

To tackle these difficulties, the kingdom has introduced an ambitious national framework known as the New Development Model (NDM) that has been built through an inclusive approach to present a credible and achievable path towards change. The NDM aspires to establish the conditions for Morocco to capitalize on its assets and transform into a nation of opportunity, entrepreneurship and innovation.

In line with the NDM, which considers digital technology as a real lever of change and development, it is essential for Morocco to capitalize on its digital heritage and leverage the power of AI.

By embracing the transformative potential of AI, Morocco can effectively implement the NDM, to accelerate progress and achieve its ambitious development goals.

"The ambition established by the NDM aspires to a bold Morocco willing and prepared to take on new challenges and opportunities and build leadership in new areas and sectors."

The New Development Model (NDM)

38

Unlocking the power of AI in Morocco

Public Sector

Governance

Economic Growth

Private Sector

Inclusion

Civil Society
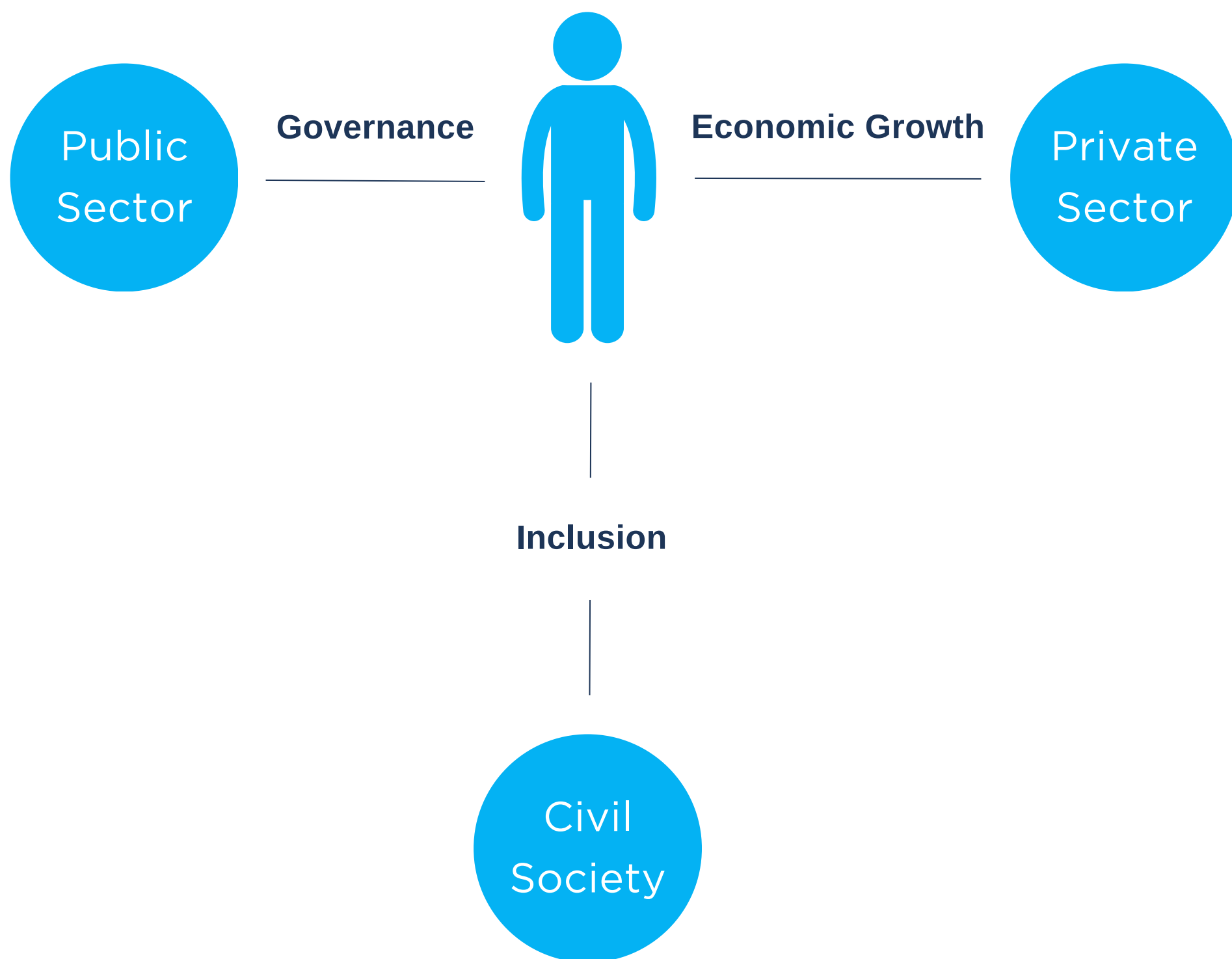
AI is undoubtedly the most powerful digital technology of our time and can play a pivotal role in enhancing competitiveness of any nation. Morocco is not an exception; if it exploits the power of AI effectively, it can drive sustainable economic growth, addressing major societal issues, and enhancing the well-being of all its citizens.

Through a collaborative approach involving the public and private sectors as well as the civil society, Morocco can become the most competitive country in AI within the region and on the African continent, ensuring the responsible and ethical development and use of this technology.

"The Commission advocates for a new organizational doctrine based on the complementarity between a strong State and a strong Society. This balance between a strong State and a strong society has ramifications as regards to the place and role of key stakeholders: public, private or third sector players."

Unlocking the power of AI in Morocco

The public sector plays a fundamental role in coordinating specific actions to promote initiatives that go beyond the public. Its responsibilities include supporting the industry to develop AI solutions where a competitive advantage exists, creating an enabling policy environment that promotes ethical and responsible AI usage, establishing regulatory frameworks, facilitating access to data for research and development purposes, incentivizing global AI firms to locate in Morocco to connect globally, endorsing fundamental research and the application of AI to public goods, as well as the development of a skilled, diverse workforce.

The private sector is the engine that drives daily economic activity. It undertakes a crucial role in driving innovation by implementing AI solutions in priority sectors, strengthening the economy, and enhancing business competitiveness. It plays a crucial role in creating value and employment opportunities, participating in the effort for inclusion and social protection as well as investing in a win-win approach with the territories.

The civil society also known as the third sector which brings together various stakeholders who operate at the intersection of public and private sectors, should have a voice in the debate, guaranteeing that the societal implications of AI are considered and that the benefits are fairly shared across all segments of society.

Recommendations

AI stands as powerful technology of the 21st century that holds huge potential to impact nearly every aspect of human lives. Various countries around the world have already established their own strategies and others are actively engaged in the process, all in alignment with their respective national priorities.

Giving its assets, whether its geostrategic position, its digital heritage or its human capital, Morocco is well-placed to benefit from this opportunity and play a crucial role in the future's AI-driven economic and social advancement. The global AI race among countries is becoming highly competitive, making it essential to act quickly and urgently to anticipate the world's changes. To achieve this, it is highly recommended for Morocco to develop a strong and efficient AI strategy that aligns with its priorities and values.

Through this report, **MoroccoAI** explores the creation of a framework to formulate a national AI strategy. This framework takes the form of 44 recommendations derived from carefully analyzing various established national AI strategies and considering the general directions and objectives of Morocco's new development model.

These recommendations can serve as fundamental pillars of Morocco's AI strategy, creating a strong base for crafting a clearly defined roadmap that will facilitate resource allocation, identify crucial priorities, and ensure alignment with overarching goals.

Recommendations

Vision and Strategy

Skills and Education

Research and Innovation

Data and Infrastructure

Ethics and Regulation
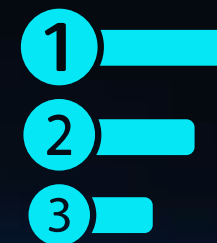
Priority Sectors

Funding Ecosystem

Governance and Implementation

Vision and Strategy

AI is a transformational technology, offering benefits to every nation that embraces its potential and compete effectively in the world economy. The global race for the development of AI is already well underway. The enormous investments made by major technology companies in the USA and China highlight that this is more than hype surrounding the latest technological progress.

In this context, establishing a strategic plan for AI in Morocco has become a national priority. Morocco will not necessarily take its place on the world AI stage by creating a "Moroccan Google" or "Moroccan OpenAI", instead it must design its own tailored model that addresses Morocco's urgent needs along with national priorities set by Morocco's new development model.

Therefore, we provide a set of seven recommendations outlining the key characteristics of a promising AI strategy for Morocco.

"

The essence of strategy is choosing what not to do

Michael Porter

"The growing complexity of today's world and the challenges facing Morocco make it urgent to provide solutions that do not simply entail a new diagnosis or a new technical strategy, as many reports have already proposed, but a new method of development."

NDM

1- Define a clear vision of the strategy

The strategy should contain a clear and comprehensive vision for Morocco's AI future. This involves identifying the kind of AI strategy that is best suited to Morocco's specific requirements, whether it will be AI for Well-being, AI for Sustainability, AI for Economy, AI for Social Good, AI for Citizens, or AI for Humanity, etc.

2- Align the strategy with Morocco's New Development Model

The strategy should be fully aligned with the vision and priorities set by Morocco's New Development Model. It should be built on Moroccan values and identify the sectors where Morocco is well-positioned to create a regional competitive advantage.

3- Define a forward-looking strategy

The strategy should critically reflect on past shortcomings and define criteria for future success. It should analyze the economic and societal implications of AI and envision Morocco's role in the African and regional contexts.

55+

More than 55 countries over 181 have a vision for implementing AI across a national AI Strategy

Government AI Readiness Index 2022

4- Define practical actions and measurable milestones within the strategy

The strategy should propose concrete actions and milestones that are relevant and measurable. It should include indicators and metrics to measure progress and assess the development of AI in Morocco.

5- Foster an inclusive ecosystem strategy

The strategy should adopt an ecosystem approach and identify some of the most important conditions for different stakeholders to manage together the AI development in Morocco. Every part of society should participate; this is not a challenge that municipalities, academic institutions, or private businesses can address in isolation.

6- Align the AI strategy with Moroccan Government strategies

The strategy should be elaborated in connection with other strategies and initiatives undertaken by the Moroccan Government.

7- Evaluate and adjust the strategy continuously

The strategy should be agile and needs to be adjusted and evaluated periodically, in line with technological and social developments.

15+

Over 15 countries have started work on their AI strategies but haven't published a full strategy yet

Government AI Readiness Index 2022

Skills and Education

Skills and education form the foundational pillars upon which a prosperous economy, society, and nation are built. Their importance becomes even more pronounced when it comes to harnessing the benefits offered by AI-enabled technology. In this regard, we provide a set of **six recommendations** that turn around the investment in education and training programs to develop a strong AI talent pool and align Morocco's workforce with the demands of the future.

"Investing in a Skilled Morocco, where human capital is strengthened and empowered to face the future, is an imperative to dynamize social mobility and enable the country to significantly improve its position on global rankings related to human capital development."

NDM

"The current educational structures aren't ready for the effects of AI on employment in 2030 and beyond"

Pew Research Center

8- Invest in AI education and training programs at all levels

Allocate resources to develop AI talents through education and training programs, ranging from primary and secondary schools to universities. This can include curriculum development, teacher training, assessment reform, and providing access to relevant technologies and resources to foster 21st century skills among students at all educational levels.

9- Align education to future AI workforce needs

Realign education to meet the current and future AI needs of the industry. This can involve joint initiatives, partnerships, and projects that bridge the gap between academic knowledge and industry demands. Re-skilling programs should also be established to help the existing workforce acquire new AI-related skills and adapt to changing job requirements.

10- Raise awareness and understanding of AI among the general population

Promote the development of AI literacy among the general population through education campaigns, public forums, and workshops. These initiatives can help society at large to understand the basic concepts, applications, and implications of AI, enabling individuals to make informed decisions about its use in their daily lives.

AI related courses from 2016 to 2020

102.9%

The growth of AI related course by 102,9% for undergraduate levels

41.7%

The growth of AI related course by 47.4% for graduate levels

AI Index

11- Integrate AI education in the curriculum of all disciplines

Integrate AI in the curriculum of all disciplines to equip students with the skills needed to adapt to the new era of AI. These disciplines should not include computer science and mathematical fields alone, but also other various domains such as engineering, natural science, humanities, medicine, economics, and law.

12- Encourage diversity and inclusivity in AI training programs

Increase the participation of underrepresented groups, including women and people with disabilities, in AI training programs. This can be achieved through the creation of inclusive environments and programs that support the development of a diverse talent pool in the field of AI.

13- Promote lifelong learning and professional development in AI

To foster the culture of lifelong learning and professional development in AI, it is important to encourage individuals to take ownership of their continuous learning and skill enhancement. This can be facilitated by providing access to online courses, mentorship, and other professional development opportunities.

"**More than half** of the AI in education market is made up of learning platforms & virtual facilitators."
GM Insights

"**Nearly half** of learning management systems will incorporate AI by **2024**."
Forbes

"**Academic AI assistance can be up to 80% as accurate as assistance from human educators.**"
Stanford

Research and Innovation

Research and Innovation constitute a fundamental pillar for the advancement of AI and are vital for the Economic Competitiveness of any Nation. By investing in AI research and innovation, Morocco can unlock new opportunities and drive significant productivity to unprecedented levels. In light of this, we suggest **nine recommendations** aimed at realizing this objective.

"Robotics, automation, and networked production enabled by artificial intelligence technologies will greatly reduce the importance of human intervention and labor in many sectors. These trends require countries such as Morocco to place the training of human capital and R&D and innovation among its development priorities."

NDM

30%

"Intelligent robots could replace 30% of the human workforce globally by 2030."

McKinsey & Company

14- Foster interdisciplinary research in AI

Encourage interdisciplinary AI research that gather experts from different fields such as philosophy, cognitive science, linguistics, neuroscience, engineering, medicine, sociology, economics, and psychology. Such collaborative efforts will lead to more effective implementation of real-word solutions that have an impact of the Moroccan society at large.

15- Facilitate industry-academia collaboration in AI

Facilitate partnerships, joint initiatives, and knowledge exchange between academia and industry to promote the practical applications of AI research in real-world settings. Such collaborations need a support for the commercialization of primary AI research, and legal incentives for bright young researchers to create their start-ups, and hold positions in private companies.

16- Create a good environment for commercial research and applied AI

Establish special laboratories and centers to promote the adoption and innovation of AI in small and medium-sized enterprises (SMEs). These laboratories should provide SMEs with access to recent AI technologies and resources for experimentation at lower costs and with minimal risks.

The number of AI journal publications growth

19.6%
From 2019 to 2020

34.5%
From 2020 to 2021

AI Index

17- Promote international collaboration in AI research

Encourage international collaboration in AI research to foster global cooperation in addressing the challenges and opportunities of AI. This can be achieved through participation in international research projects, hosting international conferences, workshops and summer schools as well as collaborating with researchers and organizations from different countries.

18- Attract highly skilled Moroccan researchers and experts from around the world

Implement incentive-based approaches to attract talented Moroccan researchers and experts from across the world to create an environment that foster AI breakthrough discoveries and inventions. This can be done by implementing programs that invite recognized AI researchers and experts to participate in workshops and lectures within Moroccan universities and businesses, as well as collaborating on research projects with local entities to encourage knowledge transfer.

19- Enhance business competitiveness through AI

It is important to acknowledge that the obstacles in adopting AI are not limited to technological aspects, but also include recognizing the business opportunities that AI can offer. To address these challenges, it is recommended to provide assistance to organizations to increase their competitiveness through the use of AI.

2.7x

"The number of enterprises using AI grew 2,7 times between 2015 and 2019"

Gartner

0.4x

"AI technology can enhance business productivity by up to 40%"

Accenture

20- Support open-source AI platforms

Provide support for the development of open-source AI platforms to promote the sharing of AI-related knowledge, tools, and resources. This can foster a collaborative environment for AI research and innovation, and accelerate the development of scalable AI systems.

21- Showcase AI successes

Organize large-scale events that showcase successful AI initiatives and projects in Morocco. This can raise awareness, inspire innovation, and promote the adoption of AI technologies in various sectors of the economy and society.

22- Promote collaboration between Moroccan companies and global AI firms

Implement measures that incentives stronger connections between local businesses and global AI firms, facilitating their integration into global value chains and enabling technology transfer from international companies. These incentives will also serve as motivation for international firms to set up regional offices in Morocco.

30x

"The number of AI patents filed in 2021 is more than 30 times higher than in 2015"

AI Index

34736

"The number of AI-related publications on arXiv grew by more than 6x, from 5,478 in 2015 to 34,736 in 2020"

5478

2015   2020

52
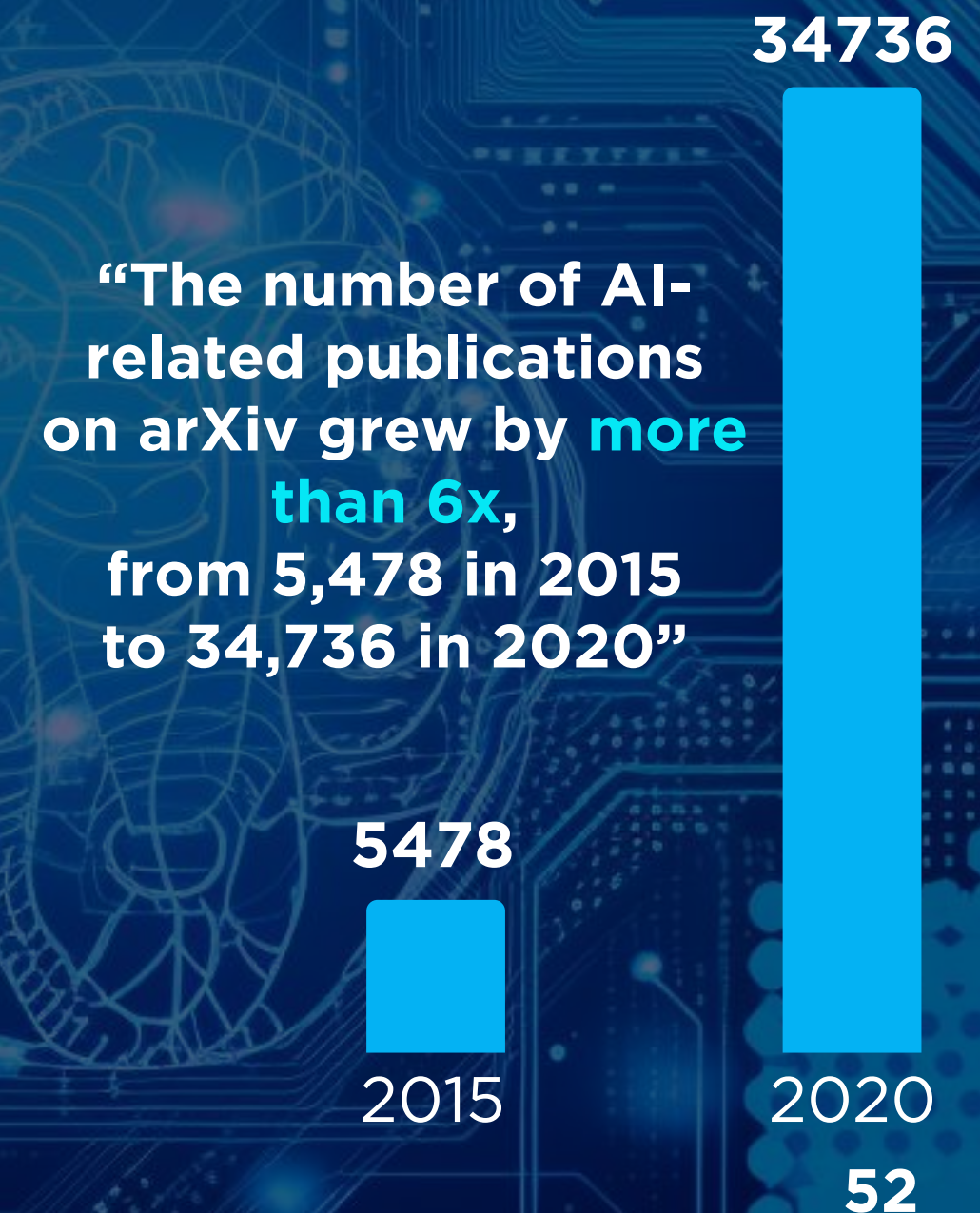
Data and Infrastructure

Although AI research and innovation are often associated with software advancements, the performance of AI systems relies heavily on two crucial elements: data and digital infrastructure. Data serves as the fundamental raw material that fuels AI algorithms, while infrastructure provides the essential computing power required for processing and analyzing this data. Recognizing their significance of these two elements, we put forward **six recommendations** aimed at achieving this goal.

"The country's digital transformation requires a rapid upgrade of the digital infrastructure, with high-speed broadband connection of the entire territory."

NDM

"The global market for AI-specialized hardware stood at a little over $10 billion in 2021 and it is expected to grow to $90 billion by 2030."
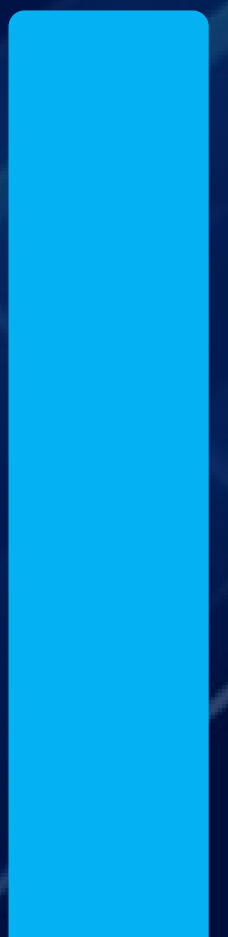
FW3

$90B

$10B

2021

2030

23- Invest in sophisticated hardware

Allocate resources to establish sophisticated infrastructure, such as high-performance computing (HPC) systems and data centers to support the collection, storage, and processing of large data sets required for AI development and adoption. The AI capabilities within the cloud computing environment are also crucial for enhancing business operations efficiency, and data-driven insights.

24- Improve connectivity and accessibility

Ensure widespread availability of high-speed internet infrastructure to enable seamless data transfer, collaboration, and access to AI resources. This can involve investing in broadband infrastructure in underserved areas and implementing policies that ensures universal access to reliable internet connectivity.

25- Enhance cyber security strategies to safeguard AI-based technologies

The transition from human controlled to AI systems is associated with increased risks in terms of cybersecurity. It is then recommended to improve cybersecurity so that AI can be safely and effectively used. Cybersecurity standards should be permanently tested and adjusted according to new risk scenarios.

$10B+

"In Q2 2023, global cloud infrastructure service spending grew by $10 billion compared to Q2 2022, bringing total spending to $64.8 billion for the three months ended June 30. Looking at the trailing twelve months, the cloud market is now a $247-billion opportunity."

Synergy Research Group

50th

"In the Global Cybersecurity Index (GCI) of 2020, Morocco holds the 50th position."

ITU / International Telecommunication Union

26- Build robust data governance

Build robust data management systems that can efficiently handle the huge amounts of data required for AI applications. Through these systems, the isolation of data processing in silos can be avoided, enabling the integration of public data sourced from various government departments.

27- Advance collaborative data sharing

To spread a culture of data sharing, it is important to encourage open data initiatives across industry, and government sectors, supported by policies, frameworks, and incentives. Establishing platforms for open data, including repositories, marketplaces, and collaborative sharing systems, can facilitate seamless data exchange, promote interoperability and responsiveness to data demand, and foster a collaborative environment for AI development.

28- Invest in data collection and annotation

Create large, diverse, and high-quality datasets that can effectively train and rigorously test AI models. This can involve allocating resources to collect data from various sources, ensuring diversity in data samples to avoid bias, and carefully annotating data to provide accurate labels.

2.6x

"Data management, Processing, and Cloud" received the greatest amount of private AI investment in 2021 around 2.6 times the investment in 2020, followed by "medical and healthcare" and "fintech."

AI Index

Ethics and Regulation

The ethical and regulatory questions regarding AI need to be openly discussed and require input from many different stakeholders in the Moroccan society. It is imperative to ensure that AI is developed and utilized in a responsible and transparent manner, while getting aligned with Moroccan values and ethical principles. In this context, we propose **four recommendations** aimed at achieving this purpose.

"The NDM calls for a framework for building trust and accountability, in order to strengthen the legal and moral security of all stakeholders and ensure the primacy of common interest."

NDM

"The parliamentary records on AI in 81 countries likewise shows that mentions of AI in global legislative proceedings have increased nearly 6.5 times since 2016"

AI Index

29- Establish a robust legal and regulatory framework

To address the challenges facing insufficient regulation in the Moroccan AI landscape, it is important to build a robust regulatory framework that incorporates incentives and positionning it as an appealing jurisdiction for the establishment of AI-driven businesses. Given the dynamic and evolving nature of AI, traditional regulatory models are inadequate to the rapid pace of technological advancement. Therefore, adopting a gradual and iterative approach becomes essential to reshape regulatory paradigms, fostering trust in the realm of AI while accommodating its evolving uses and technologies.

30- Define AI standards and guidelines

Develop standards and guidelines that outline the ethical and responsible development and deployment of AI systems. These standards can cover areas such as privacy, equality, security non-discrimination, inclusion, diversity, dignity, safety, fairness, transparency and accountability in AI applications.

52%

"52% of consumers don't believe AI will protect their private information"

Blumberg Capital

75%

"Over 75% of consumers are concerned about misinformation from AI"

Blumberg Capital

31- Establish a national advisory board on AI ethics

Create a national advisory board that provides expert guidance on ethical issues related to AI. This body can play a crucial role in integrating ethical considerations into the development and deployment of responsible AI systems. The advisory board should address ethical and public policy questions, which will become increasingly important as the use of AI expands into sensitive areas of society. The framework to be developed must be consistent with both Moroccan social and cultural norms as well as international guidelines.

32- Promote explainability in AI

Promote explainability in AI systems to ensure that they are understandable, auditable, and accountable. This involves employing interpretable AI models and providing explanations for AI decision-making processes.

"The number of bills containing "artificial intelligence" passed into law grew from just 1 in 2016 to 37 in 2022"

AI Index

37

1

2016   2022

58

Priority sectors

AI is a general-purpose technology that can be used to increase the efficiency, safety, and quality of production processes in almost every sector. However, for Morocco to emerge as an regional role-model in AI, it does not imply the need to strive for leadership across all sectors. Indeed, no nation can or will be competitive in every or even most sectors of the society.

To establish a competitive advantage, it is recommended for Morocco to prioritize and focus on three to five specific sectors where it possesses distinctive assets and unique opportunities.

When identifying these sectors, consideration should be given to their potential for generating significant externalities through the adoption of AI solutions. Consequently, the government should assume a leading role in crafting implementation roadmap for AI within these sectors.

2021 $93.5B

2022 $136.6B

2025 $407B

2030 $1811.8B

Global AI Market

38%

Annual growth in the Global AI Market from 2021 to 2030

Grand View Research & Marketsandmarkets

Moreover, with the ongoing regionalization efforts in Morocco, which aim to empower each region and redefine the distribution of powers between the central government and local actors, it is essential to consider the regional context when prioritizing sectors for AI development. This regionalization process highlights the need to address both transversal sectors that benefit from nationwide investment and specific sectors that require targeted efforts within each region. By recognizing the unique requirements and opportunities within different regions, Morocco can effectively harness the potential of AI to drive development and innovation at both the national and regional levels.

Taking into consideration all these factors, we propose **five key sectors** that require specific attention for targeted AI development in Morocco. From our perspective, these sectors align with Morocco's unique needs, capabilities, and potential for economic and social impact.
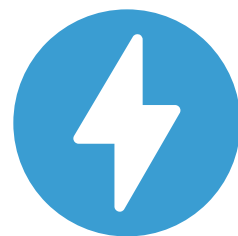
Public Services

Healthcare

Education

Energy

Agriculture

"In line with the Constitution, the NDM advocates a «Morocco of Regions» to ensure the convergence and efficiency of public policies at the territorial level."

"Building a bold Morocco, which will become a regional trailblazer in targeted areas in the future."

NDM

60

Government and public services

AI has the potential to transform the way public services are delivered, making them more efficient, accessible, and responsive to the needs of citizens. By leveraging AI technologies, public institutions can simplify processes, automate repetitive tasks, and deliver customized services to citizens.

By investing in AI solutions, the Moroccan administration will not only reduce bureaucratic inefficiencies but also increase transparency and enhance overall service delivery to its citizens. Additionally, instead of solely acting as service providers, public institutions should embrace the concept of platforms that manage an ecosystem. By adopting a platform approach, data sharing and interoperability are fostered, enabling access to diverse datasets for the development of more accurate AI solutions.

"The NDM envisages Morocco achieving a more than 80% satisfaction rate among citizens with respect to the administration and public Services by 2035."

NDM

"The global AI Governance Market is projected to grow from $80,8M in 2021 to $2,7B in 2031 with a CAGR of 42,1%"

Allied Market Research

$2.7B

$80.8M

2021

2031

Healthcare

Adopting AI in the healthcare sector is crucial for Morocco's advancement to provide sophisticated medical services, improve patient outcomes, and address the healthcare challenges of the future. Through effective use of AI technologies, hospitals can enhance the precision of their medical diagnostics, and increase accessibility of healthcare services to patients.

Through AI, Morocco can become a strong player in drug discovery at the regional level, and boost the development of new treatments for different diseases. To achieve these goals, there are some crucial basis like data governance and connectivity which must be taken into account for ensuring equal access to healhcare services.

"The NDM envisages Morocco increasing the doctor-to-population ratio to meet World Health Organization standards by 2035"
MarketsandMarkets

$102.7B

"The global AI Healthcare Market is projected to grow from $14,6B in 2023 to $102,7B in 2031 with a CAGR of 47,6%"

MarketsandMarkets

$14.6B

2023   2028

Education

AI is a powerful technology that can improve the quality of the moroccan educational system and better prepare its citizens for the future. AI solutions cannot only facilitate personalized learning experiences but also contribute to the development of engaging and interactive educational tools. This can help increase motivation and improve student outcomes.

Investing in AI in the education sector is a long-term investment that can have far-reaching benefits for Morocco. By embracing AI's transformative power in education, Morocco can foster a knowledge-based economy and unlock the full potential of its human capital, driving sustainable growth and societal advancement.

"The NDM envisages Morocco ensuring that more than 90% of pupils master elementary skills and competencies by the end of primary school by 2035."

NDM

"The global AI Education Market is projected to grow from $1,82B in 2021 to $23B in 2030 with a CAGR of 38% Report by Market Research Future"

MRFR

$23B

$1.82B

2021

2030

Energy

The energy sector is a key priority for Morocco. AI can play a pivotal role to enhance energy generation, distribution, and consumption, leading to improved efficiency, sustainability, and affordability. Through AI, energy production can be optimized, making renewable sources more efficient. It can analyze energy consumption patterns to minimize waste, resulting in reduced costs for consumers.

Morocco's advantageous geopolitical position further supports its transition to a low-carbon economy. Morocco has been recognized for its potential in competitive green hydrogen production, and its commitment to renewable energy is evident in its ranking on the Renewable Energy Country Attractiveness Index. Embracing AI in the energy sector will enable Morocco to drive innovation and attract more companies, providing a solid foundation for growth and serving as a hub for proof-of-concept systems development.

"The NDM places its bets for the future, envisioning Morocco as a champion of competitive and green energy"

NDM

$19.8B

"The global AI Energy Market is projected to grow from $4B in 2021 to $19,8B in 2031 with a CAGR of 17,4%"

Allied Market Research

$4B

2021   2031

Agriculture

Another sector where prioritizing investment in AI is crucial for Morocco is agriculture. With its favorable climate and large areas of arable land, Morocco has the potential to become a major producer of agricultural goods by harnessing AI to increase efficiencies and resource use. AI can help analyze farm data in real time, anticipating the consequences of weather conditions, water use, soil health and other variations. This can help farmers to increase the yield and quality of crops, reduce waste, and identify what to plant, how and where. AI can also be applied in precision agriculture to optimize the use of resources such as water and fertilizers, leading to more sustainable and efficient farming practices.

Two significant challenges could limit increased AI adoption in the agriculture sector. First, connectivity in rural that creates disparities in access to technology among farmers. Second, many farmers are not yet comfortable with using AI, which can affect its adoption.

"The agricultural sector is a major contributor to the national economy in terms of GDP and employment. The NDM calls for developing a modern, socially and environmentally responsible agriculture, using technology to achieve sustainability."

NDM

"The global AI Agriculture Market is projected to grow from $1,7B in 2023 to $4,7B in 2028 with a CAGR of 23,1%"

Mordor Intelligence

$4.7B

$1.7B

2023

2028

65

Funding Ecosystem

Implementing a robust national AI strategy necessitates not only careful planning but also the establishment of a strong funding ecosystem that provides the necessary financial resources and a supportive environment for AI innovation and sustainable growth. Without adequate funding and a strong ecosystem, the strategy's objectives may remain unrealized. Therefore, the following **five recommendations** are proposed to establish such a robust funding ecosystem.

"The NDM financing strategy specifically focuses on its seed phase, driven by the State and aimed at providing the conditions for the private sector to take over."

NDM

"The private investment in AI in 2021 totaled around $93.5 billion—more than double the total private investment in 2020"

AI Index

33- Establish a National AI Fund

Create a national AI fund dedicated to supporting the growth of the AI industry and promoting AI experimentation in public institutions. This fund should provide financial support for startups, research projects, and public-sector initiatives that aim to leverage AI technologies and are well aligned with the priorities set in the established AI strategy.

34- Build a strong AI ecosystem

Develop a strong Moroccan AI ecosystem characterized by robust networks between scientific institutions, economic actors (including both established companies and startups), and society at large. The AI development in Morocco should not focus on individual research approaches and applications, but rather on the development of a dynamic and diverse AI ecosystem. This ecosystem will encourage knowledge sharing, and facilitate the integration of diverse technological approaches to AI, fostering healthy competition and synergy.

35- Foster international networks and collaborations

Encourage global networks and collaborations within the Moroccan AI ecosystem to leverage global expertise, exchange knowledge, and stay updated of emerging developments. This Moroccan ecosystem should have international networks in order to develop synergy and react dynamically to new developments.

90x

"Global investment in AI has soared since 2010, increasing from a mere US$0.8B to US$78B in 2021 —an increase of over 9000%"

Blumberg Capital

29.7%

"The Middle East and Africa region will see the world's fastest spending growth in artificial intelligence, surging at a compound annual rate of 29.7% over the 2022–2026 period to $6.4 billion in 2026"

International Data Corporation

36- Allocate funds to user-friendly platforms

Reserve funds to not only academic research but also to the development of user-friendly platforms and tools that enable citizens to easily access and experiment with AI technologies. This approach will empower citizens in Morocco to actively contribute to the growth of the ecosystem while experiencing new opportunities and challenges that can lead to innovative solutions. By investing in accessible and user-centric AI platforms, Morocco can ensure that the benefits of AI are widely accessible and that its citizens are actively engaged in shaping the future of AI in the country.

37- Monitor and evaluate the AI ecosystem

Establish a comprehensive set of indicators and benchmarks to measure the development and strength of the AI ecosystem. These indicators should capture various dimensions, such as research output, industry growth, talent development, and societal impact. Regularly tracking and assessing these indicators will provide policymakers and stakeholders with valuable insights into the progress of the AI ecosystem and inform strategic decision-making.

"The NDM envisions Morocco's GDP per capita doubling by 2035."

NDM

$15,6T

Global AI Economy by 2030

PwC

Governance and implementation

Although establishing a National AI Strategy for Morocco is crucial, it alone is insufficient to guarantee success. The strategy itself is not the end of the process but just the beginning. It requires constant adaptation and adjustment to be successfully implemented and achieve the desired results.

The implementation of such a strategy is a complex process that requires careful planning, collaboration, and ongoing evaluation. This typically involves adopting clear governance mechanisms to execute the strategy, developing a detailed action plan that considers the priority sectors and regions of Morocco, and allocating resources and ecosystem funding to support the plan.

Governance plays a vital role in the implementation of a National AI Strategy by ensuring that it aligns with national priorities, values, and regulations. This requires setting and adopting clear governance mechanisms to implement and execute the AI strategy in order to ensure that all stakeholders are engaged and aligned toward the same goals in implementing the Moroccan AI strategy. As a result, the following **seven recommendations** are proposed to promote effective governance and alignment.

"Morocco's development trajectory over the last few decades reveals real progress in many areas, but slow implementation of several major reforms, often hampered by operational constraints. These constraints have made it difficult to maintain the momentum of reform and to consolidate the gains necessary for the transition to a new level of development."

NDM

38- Coordinate the execution of the strategy through a multi-stakeholder entity

Establish a multi-stakeholder entity composed of representatives from relevant government agencies, the private sector, and academic institutions to oversee the national AI strategy and provide guidance to government entities during its implementation. This entity's core objective would be to ensure the strategy's alignment with its intended goals by consistently monitoring vital indicators, engaging stakeholders, and making necessary adjustments and modifications.

To effectively fulfill its mission, we propose the formation of three separate committees: the strategic committee, the operational committee, and the expert committee. Each committee would be assigned specific responsibilities and comprise representatives from relevant agencies and departments.

"The NDM recommends and efficient and effective system of governance with clearly defined roles and responsibilities"

NDM

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39- Form a strategic committee

Form a strategic committee tasked with providing guidance and support to various government entities to implement the strategy. In particular, its mission is to:
- Advise the administration on priorities related to AI across agencies
- Engage supporters and donors through governmental channels to secure the required funding for the execution of initiatives and projects
- Coordinate cross-governmental AI policies
- Assess the degree of AI adoption, including its broader impact on the efficiency of both public and private sectors, as well as its contribution to economic growth
- Review and update periodically the strategy in collaboration with the relevant authorities

40- Form an operational committee

Form an operational committee that will serve as the operational arm of the strategic committee. Specifically, its role encompasses:
- Supervise and follow-up on the implementation of projects and initiatives arising from the strategy
- Report periodically to the steering committee on the progress of projects and initiatives
- Evaluate the impact of AI on industry, government administration and society

"The effective implementation of the development model requires the strengthening of the strategic management, monitoring and change management functions. The change process is difficult everywhere; it requires first and foremost leadership and strong commitment, but also continuity, perseverance, risk-taking and ongoing management of resistance."

NDM

41- Form an expert committee

Form an expert committee composed of internationally-reputed Moroccan experts and of scientists, economists and representatives of society that will :

- Choose and develop targeted areas of specialized AI capability to gain a comparative advantage in the global marketplace;
- Define clear goals and targets for research which are associated with solutions to major problems of national significance;
- Identifies and leverages networks of expertise and resources which lie across jurisdictional boundaries.
- Prepare periodically knowledge reports on the future of AI

42- Form an AI commission in the parliament

Create an AI commission in the parliament that will collaborate with the Executive branch and consult experts to enhance the knowledge and expertise of lawmakers regarding the challenges and opportunities presented by AI. This commission can analyze the best practices of other nations in the process of drafting AI-related laws and facilitate round-table discussions to begin generating ideas for a flexible legal framework suitable for Morocco.

"The new model translated this ambition into targeted development objectives, that are ambitious yet realistic, and that would elevate the Kingdom up to the top third of the various global rankings by 2035, and would enable it to further confirm its vocation to be a regional role-model."
NDM

43- Drive AI Momentum and spread culture of trial and error

Select high-value use cases to create momentum and build expertise in AI implementation. These "quick wins" will serve as low-hanging fruits that can be easily achieved, fostering confidence and support from stakeholders. Additionally, they provide valuable insights into the implementation process and help define the initial steps to put the strategy into action. The spread of trial and error will allow for greater flexibility and openness to innovative AI solutions, ensuring that promising startups and smaller organizations are not excluded from the procurement processes.

44- Measure progress through evaluation and monitoring

Regular evaluation and monitoring play a crucial role in the implementation, as it helps to measure progress, identify areas for improvement, and ensure that the strategy is achieving its intended goals. It can also help to build confidence and support from stakeholders, by demonstrating the progress and impact of the strategy. Two types of indicators can be employed to assess the execution of the strategy: the first type pertains to strategic goal achievement and the second one is directly related to project and initiative outcomes.

"In order to make these development objectives clear and consistent, the Commission proposes to accompany them with a selection of indicators intended to lay down the primary objectives of the new model in an explicit, quantified and quantifiable way. These indicators, limited in number, aim to measure the final impact in terms of development. They underline the need to deliver results for the stakeholders tasked with implementation, while remaining flexible as to the possible solutions and appropriate measures."

NDM

ABOUT US

MoroccoAI is a Non-profit Organization dedicated to promoting AI Growth in Morocco across the Spectrum

Our Vision

Empower AI transformation in Morocco and connect today's and tomorrow's AI leaders.

Our Mission

We promote excellence in AI education and research. We partner with universities and industry to drive innovation and build AI-enabled solutions

Our Values

We strive to uphold the guiding principles that make us who we are and shape where we are headed:

- Diversity and Inclusion
- Stewardship and Integrity
- Creativity and Innovation

ABOUT US

Established in 2019, MoroccoAI is a Non-Governmental Organization (NGO), led by AI scientists and researchers in Morocco and abroad. MoroccoAI core focus is on promoting AI education and fostering excellence in research and innovation, in Morocco and across the broader African landscape and beyond.

MoroccoAI is committed to contibuting to Morocco's AI transformation across the spectrum and empowering present and future AI leaders. This mission is achieved through the establishment of valuable partnerships with universities and industry fostering a collaborative ecosystem for innovation.

As part of its strategic vision, MoroccoAI hosts a range of impactful events and initiatives. These include highly anticipated annual conferences, engaging monthly research webinars, AI hands-on workshops and data competitions. These events attract significant interest and participation, serving as catalysts for knowledge exchange, networking, and cultivation of strong collaborations.

MoroccoAI is driven by a strong conviction in the profound impact of AI. The NGO is dedicated to nurturing a thriving AI ecosystem in Morocco by fostering a diverse inclusive community that harnesses the transformative power of AI to propel societal advancement and economic growth.

AUTHORS

Prof. Mohammed Khalil
President
MoroccoAI

Prof. Abdelhak Mahmoudi
Vice-President
MoroccoAI

Dr. Redouane Lguensat
Co-founder
MoroccoAI

Hicham Hammouchi
Treasurer
MoroccoAI

SUPPORT TEAM

Abdelhaq Bensghir
Consultant
MoroccoAI

Abir El Halimi
Brand Designer
MoroccoAI

Rabat, Morocco

contact@morocco.ai