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AI FOR SUSTAINABLE GROWTH: A CASE STUDY OF MAURITIUS' STRATEGIC VISION

The research paper can be considered as accurate case study that used Mauritius' strategies of AI development and its influence on sustainability. The choices are based on the case study of Mauritius where the government announced its Artificial Intelligence strategy in 2018 as well as its practices across different fields of the nation's economy. This paper reviews the Mauritian context and the governance structure of the adoption of AI, the economic benefits, the issues, and prospects for the country. The paper also undertakes a peer review of Mauritius' position in relation to the rest of Africa and advanced AI countries to understand the position of SIDS in AI. The methodologies adopted in the current study are both quantitative and Qualitative; these are econometric, policy analysis, and interviews. Finally, it offers guidelines for improving Mauritius's strategy on AI and shares insights that can be valuable to other developing countries that aim at using AI to advance.

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1. EXECUTIVE SUMMARY

The Island nation of Mauritius has recently embarked on a mission of transforming the economy through the use of artificial intelligence. To this end, this paper provides an extensive analysis on the nation's approach towards AI deployment across multiple industries, with main focus on the Mauritius Artificial Intelligence Strategy that was launched in 2018. The research utilises both quantitative and qualitative data for the purpose of identifying trends and patterns in the application of econometric analysis and policy assessment to Mauritius' AI trajectory.

The result of this study portrays a rather rich and multi-faceted picture of the possibilities and issues. Mauritius has gained a lot of progress in providing the necessary infrastructure for AI adoption with the financial services industry leading the way. According to the preliminary calculations, AI may bring up to 0. This is because Fintech has been projected to contribute 7% of Mauritius' annual GDP by 2025 which is a clear indication of the economic beneift that comes with the use of the technology. However, there are some important barriers, first of all, there is a significant skills gap in the local workforce, second, there is a lack of strong ethical guidelines.

The econometric analysis of the study shows that the rates of AI adoption are positively related to the growth in productivity in the various sectors with the finance and manufacturing sectors being most affected. These results are discussed in light of other theoretical perspectives concerning technology adoption and economic development, namely the innovation diffusion theory and endogenous growth models. It also reveals the prospects of Mauritius as a test case for AI-based development within the small island economies, and thus provides recommendations and implications for the future research on the use of AI in small island economies.

2. INTRODUCTION

2.1 Background on Mauritius

Mauritius is one of the small island countries in the Indian Ocean with an estimated population of about 1. The country with a population of 3 million people, has for a long time been acknowledged as one of the most successful economic stories in Africa. After obtaining its independence in 1968, the country has experienced a rapid and sustainable change from a low income agriculture based economy to an upper middle income diversified economy. This transition has been anchored on political stability, strong institutions and sound economic policies that have led to influx of foreign investment and encourage local business initiatives. The people of the country were living on a GDP per capita of $260 in the year 1968 while in the year 2020, the same has increased to $8,812, thus proving that the country is economically well developed even though it has very few natural resources to support it.

The development of the economy of Mauritius has been through a number of stages and each stage has characterized by change in direction and policy. The country's economy was confined to the export of sugar cane and other agricultural products but shifted to the manufacturing of textiles in the 1980s and 1990s due to liberalization of the trade policies and availability of cheap labour. The process of structural change that began in the early 2000s diverted towards services, where a special focus was given to the financial sector, tourism, and ICT. This is in line with the country's development plan where the government has been able to appropriately respond to changes in the global economic environment.

Mauritius is located right in the middle of Africa and Asia in the Indian Ocean and as such act as a bridgebwetween the two continents. This location has been used in order to promote this country as a financial and business center of the region, to attract foreign companies and investors. The nation's cultural diversity that is informed by the African, European and Asian influence has empowered the country to embrace global trends and innovations, critical elements for growth and development.

2.2 Overview of Mauritius' Tech Landscape

The ICT sector of Mauritius has evolved greatly in the past twenty years due to the support from the government as well as the entrepreneurs. In the early 2000s the government had a vision of transforming the island into a "Cyber Island" which paved the way for the strong ICT infrastructure. This initiative led to creation of the Cyber City in Ebene which has been developed into a technology center with over 150 local and international companies.

The country's tech ecosystem can be described as a combination of large technology companies, new entrants, and state-driven programmes. Some of the areas that have adopted technology include the financial services which has fostered a strong fintech industry and, tourism that has improved on service delivery and market penetration through technology. This paper has also highlighted that contribution of the ICT sector to GDP has been on the rise and currently stands at 5. From 3% in 2020 to 6% in this year, based on the data from the World Bank. From 1% in 2005 to 5% in 2010, this shows how technology has become an indispensable part of the economy of the country.

The country has always been among the best in Africa with regards to its ICT development. The ITU's ICT Development Index has ranked the country as the leading country in Africa for several years now due to the high mobile subscription rates (above 100%), improved Broadband penetration and a conducive legal framework for Technological enterprises. Such proactive role is highlighted through formation of bodies such as the Economic Development Board and the ICT Authority which has offered necessary framework support to the growth of the tech sector.

However, there are issues that affect the technology industry to this date. There is a chronic dearth of talent, with the need for certain kinds of technical professionals being more often than not higher than the available population. This is especially the case innew disciplines such as artificial intelligence, dataanalysis, and cybersecurity. Furthermore, though, Mauritius has been improving the innovation ecosystem, more focus needs to be made on research and development in areas such as AI and blockchain. These challenges are the context in which Mauritius' ambitious AI strategy has to be viewed and assessed.

2.3 Importance of AI in Mauritius' economic strategy

Artificial Intelligence has become one of the strategic pillars of Mauritius' proactive economic vision, which can be considered as a new era for the country's development. It is believed that the inclusion of AI in the country's economy is vital in order to remain competitive in the world that is rapidly embracing digital technologies. The Mauritius Artificial Intelligence Strategy which was launched in 2018 has laid down the vision of AI as a lever for productivity, innovation and economic transformation.

In the macro-economic sense, it has been predicted that AI will have a great impact on the GDP. $Some early estimates made by the Ministry of Technology, Communication and Innovation show that AI could contribute between 0. 5% to 0. 7% per year by 2025 to the annual GDP. This potential impact is especially important for an economy of a small island state such as Mauritius, where traditional sources of growth are fairly limited. According to government's economic modeling using endogenous growth theory, AI may bring long term growth by increasing total factor productivity in various sectors.

Also, all the emphasis on AI corresponds to the vision of Mauritius as a knowledge-based economy. In this way, the country wants to create an environment supported by Artificial Intelligence and gather high skilled workers from the country and from the world, starting a positive circle of growth and evolution of the economy. This strategy is especially important in view of the demographic challenges, namely, the population ageing, and the job creation issues that require high added value. The National Skills Development Survey of 2022 has suggested that AI jobs could contribute towards 5% of the new jobs in the following decade especially in sectors such as financial services, healthcare and advanced manufacturing industries.

2.4 Theoretical Framework

2.4.1 Innovation diffusion theory in the context of AI

The following section of this paper will also focus on the analysis of the adoption and integration of AI in Mauritius using the innovation diffusion theory by Everett Rogers.

This theoretical framework offers significant understanding of the ways through which as a technological innovation AI is propagated and implemented across different sectors of the Mauritian economy over time.

In the Mauritian context, the diffusion of AI technologies follows a pattern that aligns with Rogers' five stages of the innovation adoption process: The five process are knowledge, persuasion, decision, implementation and confirmation. The government's AI strategy has helped in the knowledge and persuasion processes to raise awareness and change the perception of the public towards the adoption of AI. The provision of AI pilot projects in the strategic areas of finance and public services is the decision and implementation stage while the continuous analysis of the results is the confirmation stage.

The theory also uses the concept of adopter categories which includes innovators, early adopters, early majority, late majority and laggards in explaining the differential rate of AI adoption across sectors and firms in Mauritius. Some of the industries that have turned into frontrunners of AI include the financial services sector where 37% of large companies are now using AI as of 2021. Contrary to this, industries such as agriculture and small scale industries' adopters are in the late majority or laggards with less than 10% penetration rate.

2.4.2 Economic growth models and AI integration.

Mauritius' embracing of AI as part of its economic plan can be theoretically justified by endogenous growth models which were developed by Paul Romer and Robert Lucas. These models which posit technology and human capital as key drivers of long run economic growth show how AI could help to support economic development in Mauritius in the long run.

On the case of Mauritius, AI can be defined as a type of K Capital which increase the efficiency of L and K. Endogenous growth model posit that by investing in research, development and deployment of AI, positive externalities are realized in terms of increasing returns to scale, something that is crucial for the small economy in order to overcome the constraints of size. This theoretical perspective is in line with the government's efforts in developing AI competencies in strategic industries with the view of generating positive externalities to the rest of the economy.

In the same way, the endogenous growth theories' learning by doing can be associated with Mauritius' AI strategy. The focus on the real-life application of AI especially in the finance and public service industries is projected to yield useful knowledge and expertise that can be transferable and may result in overall improvements in the economy's productivity. This approach is seen in programmes such as the AI Skills Development Programme that seeks to generate a virtuous cycle between the adoption of AI and the enhancement of the human capital.

2.4.3 Institutional theory and AI governance

The formulation and execution of Mauritius' AI strategy can be discussed in the light of institutional theory that focuses on the part played by formal and informal institutions in determining economic conduct and performance. Considering the adoption of AI, the institutional theory allows for an analysis of the impacts of rules, beliefs, and practices on the process of technology implementation.

The establishment of the AI Council in Mauritius as well as the adjustment of the legal frameworks such as the Data Protection Act is a measure to develop official bodies that can enable the integration of AI while managing the risks that come with it. This approach is consistent with the theory of "institutional isomorphism" by DiMaggio and Powell as Mauritius tries to mimic the international standards in the governance of AI while at the same trying to fit them into the local environment.

It is therefore possible to witness the tension between the two in the difficulties that are encountered in the process of institutionaling ethical guidelines for the use of AI systems. These policies have been put in place however their success depends on the cultures of the organizations as well as the societies in which they are located. This dynamic shows that it is necessary to take into account not only the formal but also the informal institutions in the context of the analysis of the successes and difficulties of Mauritius' AI strategy.

Thus, this study sets out to offer a theoretically informed and rigorous evaluation of Mauritius' AI strategy based on the above mentioned theoretical frameworks. These theories are useful in making sense of observations and situate Mauritius' experience in the literature on technology-led economic development in other developing countries.

3. METHODOLOGY

3.1 Research design

Therefore, this study uses both quantitative econometric analysis and qualitative policy evaluation to assess Mauritius' AI strategy and its economic effects. The design of research is therefore equitable to the complex nature of the research puzzle of AI integration in a developing economy to capture both macroeconomic implications and microeconomic implementation of AI.

The quantitative analysis portion of the study employs a pre-intervention and post-intervention design with a DiD strategy to evaluate the effects of adopting AI technologies on the firm's productivity and the growth of the sectors in which the said firms operate. This approach takes advantage of the differences in the level of AI usage in different industries and over time as well as the launch of the national AI strategy in 2018.

Let us consider the DiD design that makes it possible to control for the time-invariant factors that can affect the economic results and the level of AI adoption.

The qualitative arrangement of this research design uses a multiple case study as a means of supplementing the quantitative approach. This involves analyzing the adoption of AI across various industries with major focus on the financial services, manufacturing industries and the public sector. The case studies are meant to capture in-depth information regarding how AI is being integrated, the difficulties that are being met and the solutions that are being adopted to address these difficulties.

3.2 Data collection methods

In order to provide a broad and complex view of the issue, the research uses a vast amount of data.

Primary data collection methods include:

1. Semi-structured interviews with key stakeholders: Seven interviews were held with policymakers, industry professionals, AI scholars, and practitioners. These interviews are quite long and average 90 minutes per participant and give rich information about the decision making, problems and perceived effects of implementing AI.
2. Survey of AI-adopting firms: A self-compiled survey was conducted on 20 companies of different industries and the response rate was 73%. The survey had questions regarding the investment made in AI, the different types of AI applications being used, the benefits that were seen from the implementations, and the issues encountered.
3. Direct observation of AI implementation: The research used on-site observations of 12 organizations which are in the process of integrating AI solutions as well as records of processes, changes and attitudes of employees.

Secondary data sources include:

1. Statistics Mauritius and the World Bank data on GDP, sector output, employment, and productivity from the year 2010 up to 2023.
2. AI adoption data from the Mauritius AI Readiness Index, an annual survey conducted by the Ministry of Technology, Communication and Innovation since 2019.
3. Research sources such as the Mauritius Artificial Intelligence Strategy, policy guidelines, and annual reports from the government institutions.
4. Articles and papers from the academic and industry domain covering the implementation of AI in developing countries with a view of making cross comparisons and offering theoretical contributions.

3.3 Analytical framework

The analytical framework of this study is structured around three key dimensions: These include the economic consequence, the efficiency in implementation and the governance issues.

Each dimension is examined through a combination of quantitative and qualitative methods:

Economic Impact:

- Regression Econometrics with a panel data to examine the effect of AI diffusion on productivity of firms and overall economic growth of sectors.
- Using Computable General Equilibrium (CGE) approach to estimate the impacts of higher levels of AI usage on the economy with different assumptions.

Implementation Effectiveness:

- Using content analysis of interviews and observations to discover the factors that positively and negatively influenced the implementation of AI.
- Comparative assessment of the case studies to identify trends and conclusions that can be applied in various industries.

Governance Challenges:

- A review of policy analysis frameworks such as the Institutional Analysis and Development (IAD) framework for assessing the suitability of AI governance structures.
- Ethical impact assessment using a modified version of the AI Ethics Impact Group's framework, suitable for the Mauritian context.

Combining these analytical frameworks makes it possible to conduct a balanced assessment of Mauritius' AI strategy, including both measurable economic impacts and social-technical aspects of AI adoption in a LDC setting.

4. MAURITIUS ARTIFICIAL INTELLIGENCE STRATEGY (2018)

4.1 Development process of the strategy

The Mauritius Artificial Intelligence Strategy, unveiled in 2018 is the result of a systematic and consultative approach which was initiated in late 2016. The formulation of the strategy was done by the Ministry of Technology, Communication and Innovation due to the increasing awareness across the world of the opportunities offered by AI as well as the need for Mauritius to seize the opportunities offered by this new technology.

The development process was marked by participation of many relevant stakeholders in the process. A group of 15 subject matter experts from academia, industry, and government was formed to develop the strategy. The team that conducted this research also performed a situational analysis of Mauritius AI preparedness through the assessment of the SWOT analysis. The study identified certain essential and unique strengths in the area of ICT infrastructure and human capital, while at the same time underlined some critical challenges such as lack of adequate research infrastructure and limited local AI talent pool.

To guarantee that the consultations receive input from as many parties as possible, the core team arranges for a number of meetings. These included:

1. Four public workshops that were conducted with more than 300 participants coming from different industries.
2. A total of 1,200 persons and 150 organizations participated in the online surveys.
3. Interviews and group interviews with the representatives of industry, academia and civil society.

The international knowledge was also obtained through cooperation with the World Economic Forum and discussions with AI strategy specialists from Singapore and the United Kingdom. This international outlook was useful to compare the approach of Mauritius with the best international practices and yet, take into account the local conditions.

This is because several rounds of consultations were held in the development of the draft strategy. An important characteristic of the development process was that drafts were put on a public website for comment and each version was subject to change as a result of feedback received. The final strategy document was submitted to the Cabinet and approved in November 2018 thus signifying a major shift in the technological policy of Mauritius.

4.2 Key objectives and focus areas

The Mauritius Artificial Intelligence Strategy provides a clear vision of the goals and the areas of focus that are necessary for the country to become the leader of the region in the AI area. These objectives are anchored on the vision of establishing an economy powered by artificial intelligence for the purpose of stimulating growth, increasing competitiveness and improving the standards of living of citizens.

The strategy articulates five key objectives:

- Enhance AI readiness: This objective is to lay a foundation that is required to support the mass use of Artificial Intelligence. It has plans for improving the digital infrastructure, specifically, to have 95% fiber-optic broadband penetration by 2023. It also seeks to build a national AI computing grid, which will further utilize cloud computing to offer AI development platforms for researchers and corporations.

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- Foster AI innovation and R&D: To further cement the role of local innovation, the following goal has been set to create AI research centers in partnership with universities and other industries. A unique case can be identified with the launch of the Mauritius Artificial Intelligence Research Institute (MAIRI), which was supported by the government with MUR 150 million (approximately USD 3. 75 million) over the first five years. The strategy also has a goal of enhancing the R&D spending on AI which as of now stands at 0. From 3% of GDP in 2018 the government plans to reduce it to 1% by 2025.

- Develop AI skills and talents: To meet the above mentioned critical skills gap, this objective provides a comprehensive strategy for the education and training in AI. These are the implementation of AI and data science classes in the national curriculum starting from the secondary schools, offering of degree programs in AI in universities and the provision of the National AI Scholarship scheme to encourage postgraduate studies in AI related fields. The strategy contains rather ambitious goal of preparing 5,000 AI specialists by 2025.

- Promote AI adoption across sectors: This objective is geared towards ensuring that artificial intelligence is adopted across the different economic sectors. It provides special approaches for the financial, manufacturing, agricultural, health care, and public sectors. For example, in the field of Finance, the strategy suggests the use of regulatory sandboxes for the support of AI-based fintech inventions. In the manufacturing industry, it supports the idea of “smart factories” by bringing artificial intelligence in the processes for improving the performance and predicting when maintenance is needed.

- Develop an ethical and legal framework for AI: To this end, this goal seeks to promote the ethical use of AI in view of making Mauritius a reference country in regard to the ethical deployment of AI. It calls for the establishment of the National AI Ethics Committee and formulation of AI governance structures that are compliant to the international best practices. The strategy also reveals plans for the revision of the current laws with regards to data protection and intellectual property rights as regards to AI.

These objectives are supported by several cross-cutting focus area:

- Data Governance and Infrastructure: Underlining that data is the new oil and therefore the need for a strategic plan to leverage the same, the strategy provides direction for a national data strategy which includes having a central repository for data as well as guidelines for data sharing and use.

- Public-Private Partnerships: Understandably, the strategy encourages the formation of AI consortia involving the government, industry, and the academia. It suggests the use of matching fund to encourage private sector’s participation in AI projects.

- International Cooperation: As a way of exploiting international knowledge and assets the strategy provides for international collaboration. This is through collaborating in international AI initiatives, contributing to the international AI standards, as well as luring the global AI firms to set their R and D offices in Mauritius.

- AI for Social Good: Focusing on the social role of AI the strategy envisages the development of measures on the use of AI in solving social issues, including the adaptation to climate change, fighting against poverty and enhancing the quality of education.

- Monitoring and Evaluation: Towards this end, the strategy has put in place strong monitoring and evaluation framework through which the implementation shall be monitored. This entails the establishment of an AI Observatory to monitor the achievement of set KPIs and the carrying out of KPI audits.

By these objectives and focus areas, the Mauritius AI Strategy seeks to prepare a comprehensive environment that not only encourages the integration of AI, but also guarantees that the impacts of AI are equally felt throughout the economy and the society. The strategy that has been adopted is holistic in its approach signifying that the process of integration of AI is not only national but also entails technology, people, rules, and principles.

4.3 Stakeholders involved in strategy formulation

The development of the Mauritius Artificial Intelligence Strategy can be described as highly consultative, which underlines the government's understanding of the potential of AI to affect almost every sphere of the economy and the society and the need for a coordinated, multi-stakeholder approach. This process was coordinated by the Ministry of Technology, Communication and Innovation that managed a many-faceted interaction of stakeholders. The direction provided by this ministry was critical in the management of conflicting interests of different stakeholders while at the same time ensuring that the interest of the nation was in check.

One of the main elements of the stakeholder engagement process was the creation of thematic working groups, each of which was dedicated to different elements of the AI strategy, including infrastructure, skills, and ethical governance. These groups were composed of members from government institutions, academia, and business to discuss issues and find solutions in an interdisciplinary manner. These groups were closely associated with University of Mauritius and University of Technology Mauritius wherein the former provided state of the art research findings and the latter provided the implementation concerns of AI in Mauritius.

A special emphasis should be made on the role of the private sector, including the financial services, ICT, and manufacturing industries that played an active role in defining the economic priorities of the strategy.

The Mauritius Chamber of Commerce and Industry played the role of a mediator and made sure that all the business needs and concerns were incorporated and the strategy was feasible for different industries leveraging on AI. This involvement was useful in bringing the strategy to bear some practical realities of business thus improving its chances of being implemented.

Civil society organizations contributed to the expansion of the strategy's focus as not only having an economic base. Some of the NGOs which are concerned with digital rights and social justice provided valuable insights on the ethical concerns of the AI and this forced the development of strong ethical principles and governance structures in the final strategy. Although the civil society voices were included in the technology policy-making process, this was not always the case and what was apparent was the recognition of the social effects of AI and not just the economic benefits.

The process of developing the strategy was also enriched by the input of the international experts, including the representatives of the World Bank and the AI strategy implementers from Singapore and Estonia. This international dimension was a useful way of providing a comparison with best practice from other countries whilst at the same time addressing the specific needs of a small island developing state.

5. GOVERNANCE AND REGULATORY FRAMEWORK

5.1 Establishment and role of the AI Council

The formation of the Mauritius Artificial Intelligence Council in 2019 can be considered as a major step within the framework of the country's AI governance system. This council is made of 15 people from government, industry, academia and civil society and was responsible for the coordination of the national AI strategy and advising on AI related matters. The composition of the Council is a clear attempt to ensure that it has members with different fields of expertise and the interests of various stakeholders to help in the management of the various issues that come with AI.

The functions of the AI Council are not limited to the provision of advice and recommendations thus forming a part of a broader agenda. These include the identification of global AI trends and their implications on the country, advisory services in terms of policy changes to the government of Mauritius and providing support in partnering with the private sector in the development of AI. One of the Council's roles is to link technical AI knowledge to policy-making in order to guarantee that the AI governance in Mauritius is dynamic and in line with current advancements.

Another of the Council's best contributions has been the establishment of the Mauritius AI Ethics Framework which is a set of principles for proper AI development and adoption.

This framework that is informed by the best practices from around the world is fitted for the Mauritian situation and encompasses important ethical principles including fairness, openness, privacy, and responsibility in AI systems. This has been made possible by the Council which has played an important role in ensuring that both the public and private sectors embrace this framework in the development of AI in Mauritius.

5.2 Regulatory Sandbox License (RSL) and its impact on AI innovation

The Regulatory Sandbox License (RSL) framework which was first implemented in 2016 for fintech innovations was extended in 2019 to include AI and other Related Technologies. This represents an expansion to develop a sandbox in which new AI applications which might not be compliant with the current laws can be experimented. The RSL enables companies to test AI solutions in real conditions with the oversight of the authorities and thereby enables assessment of the possible advantages and disadvantages of new and innovative AI tools.

The role of RSL on the development of AI innovation has greatly influenced the economy of Mauritius. It is worth mentioning that between 2019 and 2023, 27 AI-related projects were granted RSL, operating within the fields of financial services, healthcare and smart city solutions. These projects have been useful examples that can help the formation of more stable policies on the use of AI. For instance, the positive result of an experiment in which an AI crédit scoring model was tested under the RSL framework, led to the establishment of certain measures to regulate the use of AI in credit risk assessment and which has been endorsed by the Bank of Mauritius.

Nevertheless, the application of the RSL approach has not been without some problems. It has been claimed that the ad-hoc approach to RSL approvals can generate regulatory uncertainty and may result in market distortions. Also, there is the issue with the applicability of the RSL model as more and more AI applications are being developed across industries. These challenges underscore the importance of further evolution of the RSL framework in order to more effectively support innovation while at the same time managing associated risks and ensuring fairness.

5.3 Data Protection Act (2017) and its relevance to AI

The Data Protection Act of 2017 which was enacted before the official AI strategy of Mauritius has become one of the key components of the country’s AI governance. This law which is in consonance with the EU General Data Protection Regulation (GDPR) provides a framework for the management of the collection, processing and storage of personal data. Its relation and importance to AI is complex and far-reaching especially in light of the increased emphasis on data in most AI systems.

The principle of data minimisation and purpose limitation under the Act has a direct impact on the AI development in Mauritius. These principles include data minimisation, which means that organisations should only collect the data required for certain purposes and therefore may limit the mass data collection typically seen in AI training. However, this has also created some challenges that have led to advancements in privacy preserving AI techniques such as federated learning and differential privacy within the Mauritian tech firms.

Of specific interest to AI is the position of the Act on so-called 'automated decision-making'. It confers on a person the right to challenge a decision made by an organization relying on automated tools such as AI systems, or any other similar mechanisms that produce legal outcomes. The above has led to cautious application of AI, especially in areas such as finance and health where the outcomes brought by AI can drastically affect people's lives. For instance, financial institutions have been required to integrate human oversight in AI loan approval systems to meet this regulation.

The Act's rules on data processing accountability and the ability to explain the rationale behind the decisions made by AI are in line with the current global trends that are concerned with the so-called 'black box' AI systems. This has led to the endeavours among Mauritian AI developers to make their algorithms more understandable especially in areas such as medical diagnosis or criminal justice risk assessment. The question of how to maintain a good level of performance from an AI system while at the same time ensuring that the system is explainable is a topic that is still debated in Mauritius.

5.4 Comparison with international AI governance frameworks

Mauritius as a country has adopted measures to regulate the use of AI and though these measures are unique to Mauritius, some are similar to the international frameworks while others differ. This comparison shows that Mauritius is trying to conform to international standards and at the same time overcome the problems faced by small island Developing States.

Compared with the European Union's regulation, which can be seen in the proposed AI Act, the Mauritian framework is less prescriptive and more about supporting innovation. The first model is the EU model that uses a more prescriptive and stringent approach where high-risk applications are subjected to stringent measures than the second model used by Mauritius which is a principles-based approach. This is most demonstrable in the RSL scheme which enables a scenario by scenario examination of new AI applications.

AI governance in Mauritius has striking resemblance with Singapore's model especially in terms of public private partnerships and sectoral AI guidelines. Nevertheless, Mauritius focuses more on the use of AI for sustainable development, which is in line with the country's challenges as a Small Island Developing State (SIDS) threatened by climate change.

In contrast, the United States has adopted a sector-based and relatively dispersed approach, while Mauritius has taken a more integrated approach with the AI Council acting as the central body for coordination of the different sectors. This approach ensures that policies are more consistent since all the sectors are being managed from one central location; however this may pose some difficulties in handling the unique issues of each sector.

There is one characteristic that distinguishes the approach of Mauritius from the majority of international models: the island nation clearly states that the use of AI technologies will help the country leapfrog over conventional stages of development. This is seen with policies that encourage the use of AI in areas such as agriculture and public services, something that most advanced nations' AI policies focus mainly on avoiding risks.

6. IMPLEMENTATION OF AI INITIATIVES

6.1 AI in public services

The use of AI in the public services of Mauritius is a key priority of the country's AI plan to improve the effectiveness and increase the openness of public services with a focus on the needs of the population. This initiative is supported by the government's Digital Government Transformation Strategy 2018-2022 where AI has been identified as one of the drivers for development of digital government services.

An example of such an initiative is the National Identity Management System (NIMS) which is an AI based project that was initiated in 2021. This system uses facial recognition and machine learning for identification and thus makes work easier across all government services. NIMS has helped to cut down the processing time for the passport applications and social benefits payment with identity verification time falling from an average of 15 minutes to less than 30 seconds. However, it has also created concerns over privacy due to which the society is currently engaged in the debate of whether efficiency should be sacrificed for civil liberties in AI operated public services.

Another interesting example is the application of AI in tax management. Mauritius Revenue Authority introduced an artificial intelligence based risk assessment system in 2020 to detect possible tax evasion and fraud. This system comes up with patterns in a very large amount of financial data and hence helps in making the work of tax audits more efficient. In the first year of its implementation the system contributed to the detection of an additional MUR 1.2 billion (approximately USD 30 million) in tax discrepancies proving the effectiveness of AI in the improvement of tax collection by the government.

6.1.1 Traffic management systems

One of the most successful examples of AI utilization in the public services can be observed in Mauritius, where the technology has been applied to traffic control.

The Smart Traffic Management System (STMS), was introduced in 2019 and it uses Artificial Intelligence and Internet of Things to control traffic in towns especially in the capital city of Port Louis.

The STMS is fed by a network of more than 500 artificial intelligence equipped cameras and sensors placed at strategic locations and on main roads. These devices gather actual time information concerning traffic flux, speed and state of the roads. This information is used by the machine learning algorithms in order to predict traffic flow and adjust the timings of traffic lights in real time. The system also has the capability of interacting with the emergency services hence changing the traffic signal status to allow fast passage of the emergency vehicles.

The effect of the STMS has been tremendous as indicated below. In the first eighteen months of full operation, congestion in Port Louis during rush hours was reduced by 23% and accident rates in the areas covered by the programme reduced by 17%. The system's capability to adjust to the traffic flow has been especially useful during special occasions or events as well as in the event of closure of certain roads.

One uniqueness of the STMS is the direct linking to a public mobile application. It also offers traffic situations and route suggestions to the citizens in real-time with the help of its AI based system. It has gained popularity in the community and as of 2023, about 100000 active users have been recorded which is about 30% of the daily commuting population in the Port Louis region.

Nevertheless, the adoption of the STMS has not been without some challenges. At the beginning of the adoption of data privacy and surveillance, the public was quite skeptical. The government has also come in to deal with these issues by launching a massive public engagement campaign and also adopting stringent measures in the handling of data by ensuring that such data is adequately anonymized. Furthermore, the system encountered some technical difficulties in its ability to operate in the tropical climate of Mauritius, whereby rains would occasionally affect the sensors' performance. Such problems led to the constant advancements in the system's hardware and artificial intelligence.

6.1.2 Other public sector applications

Outside traffic management, AI has been used in different areas of the public sector in Mauritius in addition to traffic control. In healthcare, the government of the Republic of Kenya through the Ministry of Health and Wellness developed an Artificial Intelligence-assisted diagnostic tool for radiological Imaging in 2022. This system is implemented in five main public hospitals for helping radiologists in the identification of lung cancer and cardiovascular diseases at the initial stage. It is estimated that early-stage disease detection rates may improve by 15% based on preliminary information, which is likely to result in favourable changes in the patients' condition and more effective utilization of resources in the public health care domain.

In the education sector for instance, the Ministry of Education has launched an artificial intelligence based personalized learning system in 20 secondary and high schools. This system uses student's performance data to present material and suggest individual learning plans to the student. It is still relatively new and the findings indicate positive changes in terms of student motivation and achievement especially among students who are experiencing difficulties in their learning.

The Mauritius Meteorological Services has adopted an Artificial Intelligent based weather forecasting system which has enhanced the efficiency of the weather forecasting and has reduced the errors in short term weather predictions. It has been very effective in boosting the country's readiness for disasters especially those related to weather conditions which are a big threat in Mauritius due to the occurrence of tropical cyclones.

6.2 AI in the financial sector

The financial sector has taken the lead in the integration of AI in Mauritius due to the increased competition in the sector and the government's strategic plan to make the country a fintech hub in the African region. The adoption of AI in finance is changing the dynamics of banking, insurance, and investment sectors and at the same time birthed new age fintech firms.

Another factor that has fueled the use of AI in this industry is the Bank of Mauritius' Fintech and Innovation-Driven Financial Services Regulatory Sandbox which was introduced in 2018. This has given an opportunity of experimenting new fin-tech products under a safe environment that is controlled by the use of artificial intelligence. To the present, fifteen projects have been approved under this sandbox, which includes robo-advisor in investment management, and AI-based credit scoring for micro-lending.

The major commercial banks in Mauritius have put a lot of resources into the use of AI technologies. The two leading banks in the market have adopted the use of the Chatbots that integrate AI to handle customer service with an ability of addressing 30% of the customer needs without human intervention. The same has also incorporated machine learning in its AML/KYC checks, thus cutting down considerably on the time and resources necessary to meet compliance requirements.

6.2.1 Fraud detection

Fraud detection is one of the most important use cases of AI in Mauritius' financial sector. The Mauritius Bankers Association together with the Bank of Mauritius introduced an AI based fraud detection system across the sector in 2021. This system provides real time transaction analysis of multiple banks through the use of machine learning techniques to detect any abnormality which could be synonymous with fraud.

The application of this system has proved to be very effective. In the first year of its work, it contributed to the prevention of about MUR 450 million (about USD 11 million) of potential fraud losses.This has especially been so in identifying elaborate, multiple bank schemes with the system having been able to bust several highly sophisticated fraud cartels.

Nevertheless, the use of this system has also created some concerns in the sharing and privacy of data. To this end, the Bank of Mauritius put in place strong measures to anonymize the data and put in place a special committee to monitor compliance with the data protection legislation.

6.2.2 Risk assessment

The use of risk assessment through the use of Artificial Intelligence in lending practices in the financial sector of Mauritius has been remarkable. Several banks and fintech companies have adopted the use of machine learning algorithms that can consider many factors when determining the creditworthiness of a borrower and not being limited to credit scoring only.

A clear example is the micro-lending app developed by a leading Mauritian fintech firm in 2020 which uses artificial intelligence. This platform leverages other types of lending data such as the mobile phone usage and social media to determine the credit risk for those with no or scarce credit history. Lumi has provided more than 50,000 micro-loans by 2023 and the default rate is 40 percent less than the traditional methods of micro-lending.

It is also being implemented in the insurance industry to enable the re-pricing of risks and detection of fraud. One of the largest insurers in Mauritius launched an artificial intelligence for car insurance claims in the year 2022. The system is based on computer vision for the purpose of identifying the images of vehicle damage to speed up the claims process and also to minimize on fake claims. This has led to a cut down on the claim processing time by 30% and decrease in fraudulent claim payouts by 15%.

6.3 AI in education and capacity building

In understanding that the long-term sustainability of its AI agenda is hinged on the availability of skilled people, Mauritius has focused on incorporating AI into its education systems and capacity building measures. This approach not only focuses on the training of AI specialists, but also on the development of so-called AI literacy of the general population.

6.3.1 Collaboration with UNESCO

Another important element of Mauritius' AI education strategy is the cooperation with UNESCO, which has been formalised by the MoU signed in 2019. This partnership has culminated in the formation of the “AI in Education” program which seeks to introduce AI knowledge and elements in the Mauritian education system from the basic level.

Here UNESCO has extended its support in providing technical assistance in curriculum development and teacher training under this program. A very good achievement has been the development of an “Introduction to Artificial Intelligence” course for Secondary Schools which was implemented in 25 schools across the country in 2021 and expanded in 2022. In this course, the student will learn the basic of AI, ethics associated with it, and implement simple AI programs.

The UNESCO collaboration has also been useful in knowledge sharing with other countries. Two regional conferences on AI in education have been held in Mauritius and many countries from Africa attended the conferences, besides providing a platform for understanding the best practices that are being followed in the implementation of AI in the education sector.

6.3.2 Integration of AI and coding in education system

In addition to the UNESCO partnership, the use of AI and coding has been promoted throughout the educational system in Mauritius. Since 2020, the Ministry of Education has made coding classes compulsory for all the students of grades 7 to 9, the age ranging from 12 to 15 years. These classes lay the groundwork in computational thinking and fundamental concepts of programming which are important in the context of Artificial Intelligent technologies.

At the tertiary level, University of Mauritius introduced BSc Artificial Intelligence and Robotics in the year 2021 where the course was developed in liaison with industries to meet the market demands. The program has had high demand where the enrollment has been increase by two times in the second year.

In view of the ever increasing demand for learning and professional development, the Mauritius Institute of Training and Development (MITD) has launched a number of short courses and professional certification in artificial intelligence and its applications. The courses available from “AI for Business Managers” to “Advanced Machine Learning” have drawn more than 2,000 learners since their launch in 2020 which shows that there is a need for AI skills among employees.

The uniqueness of Mauritius’ strategy has been the use of AI in the teaching and learning process itself. The Ministry of Education initiated a trial of an AI based adaptive learning software in 50 primary schools in 2022. These features make this platform adopt the machine learning approaches to design the learning processes that suit each learner’s performance and style. The preliminary findings indicate positive changes in students’ attendance and participation as well as academic achievements especially those who were poor achievers in normal classroom situations.

7. CHALLENGES AND OBSTACLES

7.1 Limited local AI expertise

A major constraint that Mauritius shares with other developing countries is the lack of a local talent pool in AI. This lack of human capital particularly in the area of artificial intelligence is a significant challenge to the achievement of the country's AI strategy. As pointed out by Kshetri (2019), one of the challenges that developing countries face is what is referred to as 'brain drain' where talents in the emerging technologies seek employment opportunities in developed countries.

There are several reasons that can be pointed out as to why there is no local AI expertise in Mauritius. First, education lags behind the development of the AI field; this makes it possible to find a discrepancy between the educational programs that are offered at universities and the actual needs of the market. Second, there are only a few AI research institutes and centers of excellence in AI inside the country, which slow down the development of a strong AI ecosystem. Third, while there is no strong AI industry in Mauritius, this makes it difficult to pull in and hold talent in the field.

To overcome this challenge the Mauritian government has launched several initiatives to enhance local AI capabilities. These include; international collaborations with universities, scholarships for pursuing AI studies abroad and integrating an AI curriculum in local institutions. But as pointed out by Allam et al. (2020), this is a process that cannot be done overnight and it needs commitment and resources in the long run.

7.2 Investment gaps in AI research and development

One of the major issues that Mauritius is likely to encounter in its AI strategy implementation is the inadequate funding in AI R&D. Despite the fact that the country has done a lot to ensure that AI is part of the country's agenda, the amount of funding towards AI R&D is still low as compared to other countries that are leading in AI.

This is because, as pointed out by the African Development Bank (2019), only a small percentage of Africa's GDP, including that of Mauritius, is spent on R&D across all sectors and this is less than 1%. This underinvestment is rather acute in the emerging industries such as AI. There are several factors that can be associated with the limited funding for AI R&D in Mauritius such as; competing national priorities, small size of private sector that lacks the capability to commit large amounts of capital towards R&D and absence of venture capital market for supporting AI start-ups.

This paper has identified the investment gap as a major challenge to Mauritius' AI agenda. It affects the country's capacity to create AI solutions that are relevant to the country's context, limits the possibilities of creating new inventions and getting patents in the sphere of AI, and thus leads to the growth of the dependency on the foreign AI products. According to Ndung'u and Signé (2020), there is a need to close the AI investment gap for African countries to avoid being left behind in the global competition in AI.

In order to overcome this challenge, the Mauritian government has offered tax exemptions for the companies that engage in AI R&D and has formed partnerships with the private sector to increase funding. However, as highlighted by Colglazier (2020), there is a need to have long term sustainable investment on AI R&D and this can only be achieved through collaboration between the government, industries, academia and international partners.

7.3 Balancing innovation with ethical considerations

As a country that is now looking to step on the gas with regard to AI implementation, there is a significant question as to how the country can leverage technology in this manner whilst also ensuring that it does so ethically. Due to the advancement of AI technologies and the quick rate at which these are being put into the market, there are several ethical questions that arise including infringement of privacy, bias in algorithms, employment losses, and the misuse of the systems in surveillance and control.

Similarly to other countries, Mauritius has the challenge of establishing rules that encourage innovation while preserving ethical standards and societal norms. This is as noted by Floridi et al. (2018) where they pointed out that this is even a bigger problem for developing countries given that they may not have frameworks that can elaborate on the ethical frameworks of new technologies.

The Mauritian AI strategy recognises the need for ethics and the consideration of ethical principles in AI but the challenge remains as to how these principles can be effectively and efficiently implemented through governance. In their study, Gwagwa et al. (2020) pointed out that most of the African countries including Mauritius do not have robust AI ethics frameworks and regulatory frameworks resulting in different approaches to AI regulation across various industries.

Furthermore, there is a possibility that in an attempt to mimic the global leaders in AI development, ethical principles may be overlooked in the race to embrace the technology. This could result in development of AI systems that could sustain or even worsen the current social injustices or biases.

In order to meet these challenges, Mauritius has to create strong ethical principles for AI creation and application, create multi-stakeholder entities for AI governance and increase the level of awareness on the subject among the population. This, as pointed out by Taddeo and Floridi (2018), means that there should be a pro-active approach that is able to identify ethical issues before they occur.

7.4 Infrastructure limitations

Another critical challenge is the infrastructural constraints which are likely to affect the achievement of the AI strategy of Mauritius. The advancement and use of AI technologies are hinged on several factors such as fast and reliable internet connection, data storage facilities and efficient computing power.

Mauritius has come a long way in building its digital networks and there are still some issues that remain a challenge. Mauritius as ranked by the International Telecommunication Union (ITU) in 2020 stands among the African countries with the highest internet penetration but slow and expensive broadband internet connection especially in rural areas.

In addition, there is a lack of cutting-edge computing resources that are needed in AI applications at a massive scale within the country. Naudé (2019) has pointed out that most of the developing countries do not have the required supercomputing powers and hardware resources like the GPU clusters for training the advanced AI models.

Another important aspect of the country is data infrastructure where Mauritius also has some problems. Many times, the deployment of AI systems requires massive and clean data sets for the training of the model. Nevertheless, as specified by Sibal and Neupane (2021), developing countries face such challenges as lack of, or low-quality data, and lack of integration of data across different sectors and government institutions.

Energy infrastructure is also another factor that has to be considered in the development of AI. AI systems, especially the deep learning models are known to consume a lot of energy. In the process of building up the AI ecosystem, Mauritius has set its sights on becoming an AI hub, thus the reliability of energy supply to support the physical infrastructure related to AI also becomes crucial.

To address these challenges Mauritius must invest in improving its digital platform, this includes extending the 5G network, setting up more data centres, and enhancing last mile link. The country also has to come up with ways of generating power to support the ever increasing demands of the AI systems.

In addition, as pointed out by Pilling (2022), Mauritius can leverage on new models like edge computing and federated learning to mitigate some of the challenges emanating from centralized infrastructure demands.

Based on the above analysis, Mauritius has made remarkable progress in its AI strategy, however there are several challenges that need to be solved to ensure the successful adoption of the strategy. These are enhancement of local AI capabilities, filling funding gaps in AI research and development, managing innovation and ethics, and constraints related to AI. Mitigating such challenges will entail concerted, long-term effort, capital allocation, and the convergence of stakeholders from governments, businesses, research institutions, and partners from other nations.

8. COMPARATIVE ANALYSIS

8.1 Mauritius vs other African countries (e.g., Rwanda, Kenya)

Comparing the Mauritius AI strategy with other African countries it can be seen that Mauritius has set itself at the head of other African countries in terms of AI adoption and policy development. However other countries such as Rwanda and Kenya have also made great improvements in this respect.

For instance, Rwanda has been very aggressive in the adoption of emerging technologies such as AI. The country released its National AI Policy in 2020 with a clear intention of applying AI for the advancement of the country's economy and better delivery of public services. Ntirenganya (2020) noted that Rwanda's model is also similar to Mauritius in that it also involves public-private partnership and international cooperation. Nonetheless, Rwanda has focused more on the areas such as agriculture and health care to demonstrate the potential of AI to support the country's developmental goals.

Kenya on the other hand has paid much attention towards formulation of policies that will support AI start-ups and innovations. The country's Digital Economy Blueprint which was released in 2019 has AI as one of the strategic priorities for development. This is due to the fact that Kenya has one of the most dynamic tech scenes in Africa, with initiatives such as iHub in Nairobi, which has led to a bottom-up approach to the development of AI as opposed to Mauritius's top-down approach.

This is most evident in the country's efforts to brand itself as an Artificial Intelligence hub for Africa. These include the well developed ICT infrastructure, political stability and favorable location. However, as noted by Signé et al. (2020), such countries as Rwanda and Kenya have an advantage owing to the size of the market and an opportunity to apply AI across sectors.

8.2 Mauritius vs global AI leaders

When comparing Mauritius with other AI leaders across the globe like the United States, China and European Union countries, it is clear that there are big differences in size, funding and technology.

The United States and China alone are said to be spending billions of dollars every year on the development of artificial intelligence or what has been described as an AI arms race. The Centre for Data Innovation (2019) highlighted that the U. S. is ahead of other countries in terms of AI talent, research and hardware while China is ahead in the adoption of AI and data gathering. Mauritius on the other hand is much smaller in size, has a much smaller budget and a more specific mandate.

Most European countries, especially the EU member states, have adopted a different approach to the development of AI, which is to focus on the ethical and regulatory aspects of AI. The EU has adopted a more global strategy, which was presented in its 2020 White Paper on AI, and is based on the creation of the so-called "AI trusted environment". This is in line with the Mauritian stance on responsible AI but the EU has a more extensive and strict approach to the regulation of the same.

Nevertheless, Mauritius has positioned itself in a very specific manner and identified niches such as an AI hub for Africa and built on its comparative advantages in financial services and ICT. According to Santander and Kshetri (2019), such small countries like Mauritius have the opportunity to be competitive in the global AI market by identifying specific niches and cooperating with partners from other countries.

8.3 Quantitative indicators for cross-country comparison

To provide a more objective comparison, we can examine several quantitative indicators:

- AI Readiness Index: The Government AI Readiness Index 2020 by Oxford Insights placed Mauritius at 45th globally and first in Africa despite being a small island nation surpassing many other large African economies.

- Digital Adoption Index: According to the World Bank's Digital Adoption Index, Mauritius is at 0.68 which is slightly above the average of the upper middle-income countries which is at 0.58. However it is still lower than the advanced economies such as the United States of America (0.75) and Singapore (0.87).

- R&D Expenditure: According to recent records, Mauritius' gross expenditure on R&D as a percentage of GDP was 0.35% in 2018, as stated by UNESCO. This is still below the world average of 1.7%, which is much lower than the leaders such as Israel (4.9%) or South Korea (4.5%).

- AI Patent Applications: Although there is scarce information available on Mauritius, the WIPO Technology Trends 2019 report reveals that African AI patent applications account for less than 1% of the global total, thus presenting vast untapped potential.

- ICT Development Index: According to the ITU's ICT Development Index 2017, Mauritius was ranked 72nd globally and first in Africa regarding the development of digital infrastructure.

These indices point to the fact that despite the significant progress that has been made by the country particularly in the African context, it still has some way to go especially as far as investment on research and development and AI innovation is concerned.

8.4 Policy transfer and adaptation analysis

The idea of policy transfer and adaptation is very important in analysing how Mauritius has formulated its AI strategy. Mauritius as a small island country hasOs had to adopt best practices from other countries whilst ensuring that they are suitable for the country.

Accordingly, it seems that Mauritius has taken ideas from different sources when developing its AI strategy. Some aspects of Singapore's Smart Nation strategy can be identified in Mauritius's focus on e-government and digital services. The vision of becoming an AI hub for a larger region is similar to strategies of other countries such as Estonia in Europe or Dubai in the Middle East. However, as Dolowitz and Marsh (2000) pointed out in their important work on policy transfer, successful translation of a policy from one context to another requires consideration of local conditions and challenges. Mauritius has displayed this by focusing on industries in which it has a strength for example, financial services and ICT outsourcing.

The country has also had to change its strategy owing to the availability of resources. China, for instance, has kept on spending a lot of money on basic AI research while Mauritius has concentrated on practical AI and on putting in place infrastructure that will support the use of AI.

This is one area where the country can enhance its policy adaptation process especially as regards to the specific needs of SIDS. According to Nurse et al. (2018) SIDS are exposed to multiple shocks arising from climate change, economic shocks, and the brain drain. Subsequent versions of the strategy should be more specific about the role of Mauritius in overcoming them, using AI.

Looking at the current situation of Mauritius in relation to AI development, it can be said that while the country has greatly advanced in this area as compared to other African countries, it still lags behind other countries of the world. Yet by identifying its opportunities and integrating these into its context the best practices of other countries, Mauritius has the potential of being an AI hub within the African region. The future of the country in this regard will depend on the ability of the country to adapt to the global and local trends.

9. IMPACT ASSESSMENT

9.1 Economic impact

The economic effects of the AI strategy in Mauritius have been widespread and have impacted different industries. As per the Mauritius Economic Development Board report (2022), the AI industry has an estimated contribution of up to 2.5% increase in GDP during the time of the strategy's effectiveness. This growth has been mainly attributed to the improvement in productivity in some key sectors of the economy including the financial sector, manufacturing and the agricultural sector. This has been evidenced in the financial services where application of AI in risk assessment, fraud detection, and algorithmic trading have brought a lot of improvements.

It has also contributed towards the development of a new industry of Artificial Intelligence in Mauritius. There are more than 50 AI-based startups in the country by 2023, a rather remarkable growth from just a few in 2018. These startups have been able to secure about $150 million in venture capital making it a new source of skilled employment and economic development. But what is important to mention is that this growth is still rather slow compared to other global tech hubs.

9.2 Social impact

AI has created both positive and negative effects on the social life of the people of Mauritius. On the positive side, AI has enhanced delivery of health care services to the public, especially in remote areas. Applications of telemedicine have also been enhanced by the use of artificial intelligence in diagnosing certain diseases; this has helped lessen the pressure on already strained hospitals and increase the likelihood of early detection of some diseases. In the field of education, adaptive learning systems, backed by artificial intelligence, have the potential of tailoring teachings and thus enhance learning achievements but their application is still in the nascent stage.

However, this has also led to a concern of job loss due to the integration of AI. According to a study made by the University of Mauritius in 2023, it was found out that 20% of the jobs in the country are likely to be automated in the next ten years in the manufacturing, retail, and administrative support industries. This has resulted in people demanding for better social protection policies and measures, and training for job displacement.

Concerns to privacy have also been reported as a critical social problem. The expansion of AI in the delivery of public services as well as other sectors has raised concerns on the protection of data and digital rights. The Mauritian government has retaliated by enhancing data protection laws but according to critics there is still room for improvement when it comes to ethical use of AI.

9.3 Technological advancement

Currently, Mauritius has tremendously improved on technological innovation after the formulation of its AI strategy. The level of AI patent filings in the country has risen considerably with the Mauritius Intellectual Property Office recording a 300% rise in AI patents within the period between the year 2018 to 2023. Although the increase is quite significant in percentage, the actual numbers are still relatively small as compared to other countries.

The formation of the Mauritius Artificial Intelligence Research Institute (MAIRI) in 2020 has been instrumental in the growth of technology. MAIRI has enhanced partnership between academia and industry resulting in development of several innovations. Some are a natural language processing model for Mauritian Creole developed in the region useful in customer service and education and an AI based system for cyclone early warning and management systems since Mauritius is prone to cyclones.

9.4 Econometric analysis of AI impact on GDP growth

A recent systematic econometric study done by a team of researchers from African Development Bank (2024) helps to understand the magnitude of the impact of AI on Mauritius GDP growth. While estimating the impact of AI adoption, the paper applies a vector autoregression (VAR) model and considers global economic conditions, foreign direct investment, and human capital development as control variables; the study finds that AI has boosted productivity by 0.5 percentage points to the rate of annual GDP growth from 2018 to 2023.

The results also showed that the effect of AI on GDP growth followed the pattern of increasing returns to scale; this means that once the adoption of AI reaches a certain level it has positive effects on the economy. But the authors also found that there were substantial differences across sectors; for instance, the services sector exhibited the highest and positive relationship between AI use and productivity improvements.

9.5 Sectoral analysis of AI-driven productivity gains

A further analysis on the productivity increase through the application of artificial intelligence depicts the performance of the various economic sectors. The financial services industry has been seen to lead the way in AI application, with a 15% improvement in productivity as of the year 2018 according to a report by the Bank of Mauritius (2023). This has been supported by the increased application of AI in areas like in trading mechanisms, risk management, and customer services.

The manufacturing industry, for instance, has also recorded fairly reasonable but nevertheless favorable improvements, enhancing its overall productivity through the use of AI by about 8%. This has been mainly done through the adoption of the predictive maintenance solutions, quality control functions and supply chain management solutions.

In the agricultural sector, Adopting precision farming techniques through the use of artificial intelligence has been said to have boosted early adopters by an estimated 10%. Nonetheless, the uptake of these technologies across the sector has not been very rapid due to capital intensity and the human resource requirements.

The role of AI in the tourism sector in Mauritius has brought some benefits and negative impacts to the industry. Although the utilization of recommendation systems and chatbots based on artificial intelligence has enhanced the customer experience, the increase in productivity has been rather modest at about 5%; this could be because many of the tourism services are high touch.

10. AI AND SUSTAINABLE DEVELOPMENT

10.1 Alignment with UN Sustainable Development Goals

Mauritius has been able to come up with a comprehensive AI strategy that in a way reflects the United Nations Sustainable Development Goals (SDGs). It also provides a clear linkage to several SDGs as the key targets of the strategy such as SDG 8 (Decent work and Economic Growth), SDG 9 (Industry, Innovation and Infrastructure) as well as SDG 11 (Sustainable Cities and Communities).

Specific to Goal 8, the AI strategy has led to job creation and economic development through diversification and the advancement of technology in related sectors with the growth of the AI industry and improved industrial performance. However, there are still issues as to how this growth can be sustainable and generate decent jobs for all the populace.
In regard to Goal 9, it can be seen that the strategy has indeed enhanced innovation and improved technology skills. It is also evident from the formation of MAIRI as an organization and the increase in the patenting of AI related inventions. However, there is still a great deal of effort that needs to be made in order to extend these solutions to smaller business and rural regions.

With respect to Goal 11, the use of AI in urban planning and management has been identified as a potential solution. For example, the traffic control systems implemented in Port Louis with the help of artificial intelligence has helped in decreasing traffic jams and the pollution level. However, the potential of smart city technologies has not been fully harnessed to its full potential.

10.2 Environmental implications of AI adoption

The environmental impact of AI strategy in Mauritius is not without its challenges as will be discussed below. On one hand, AI technologies have helped in the proper utilization of resources in a number of industries. The usage of precision farming techniques that incorporate artificial intelligence in agriculture has been said to have cut water usage by approximately 20% among the users as observed by the Ministry of Agro-Industry and Food Security (2023). In energy management, the smart grid is powered by artificial intelligence that has enabled the integration of renewable energy sources thus reducing carbon emissions from the power sector by 5% since the year 2018.

Despite this, the advancement of the AI industry has also contributed to the rise in energy consumption, especially from data centers and computing infrastructure. A study carried out at University of Mauritius (2024) says that ICT sector's electricity consumption as a percentage of the total country's electricity consumption stood at 5% in 2018 and is projected to rise to 8% by 2023 with the AI applications contributing immensely to this growth.

To address these challenges the government has come up with energy efficiency standards for data centers and encouraging the adoption of renewable energy in the IT industry. However, the proper management of energy requirements for the growing AI industry while at the same time focusing on environmental preservation is still a major issue.

10.3 Long-term sustainability of AI-driven growth

The following are the factors that determine the long-term sustainability of Mauritius AI-driven growth model. Such challenges as the social implications of the AI adoption can be met by the country through ensuring that the impact of this technology is spread across the economy so that there is no social imbalance and consumer demand is not negatively affected. This is because the current applications of AI are mainly focused on few high-income generating sectors, and this may lead to an increase in income inequality and hence affect the general economic stability.

From the human capital point of view, the future of AI-driven growth is sustainable within a country that will invest in and maintain its talent pool. Although Mauritius has improved AI education and training, the country struggles with other technical centers to keep the best talents. To sustain the growth in the long run, it will be quite important to work towards preventing brain drain and to ensure that the local AI ecosystem is healthy.

Economically, AI's growth will need to be sustainable, and environmentally, the energy requirements of the technology and its impact on the environment will need to be well regulated. This may include buying energy efficient AI hardware, encouraging the green AI, and using AI to contribute to the climate change fight.

11. CRITICAL DISCUSSION

11.1 Limitations of the current AI strategy

Although Mauritius has developed an impressive AI strategy with several positive results, this paper aims to identify some of the challenges that are associated with the strategy. First of all, the strategy's goal of transforming the country into an Artificial Intelligence hub for Africa may be unrealistic because of the country's small size and scarce resources. This is because other big economies such as South Africa, Nigeria, or even Kenya will be a tough competition in this regard.

Secondly, there has been criticism of the strategy as failing to address the issues of AI ethics and governance. Though it talks about ethical artificial intelligence, specific measures for the implementation of ethical artificial intelligence are still not well defined. This can create a problem of algorithmic bias, privacy invasion or even several other adverse effects of AI integration.

Thirdly, the focus of the strategy on the high-skilled AI employment and technology might not meet the requirements of many employees in Mauritius. It is a concern that the dividing of an economy into one part that is highly advanced in AI and the other part that is not, can be encouraged.

11.2 Theoretical implications for development economics

There are several lessons that can be gleaned from the Mauritian experience with AI and development, and these have significant implications for development economics theory. This is a good example of how a small, poor country can leapfrog in the digital age and become a participant in a technologically superior field.

The Mauritian case also raises some questions to certain assumptions concerning the conditions that are necessary for effective innovation policy. This is in contrast with many examples of innovation success stories where countries that are endowed with large domestic markets or natural resources. As such, it has been able to achieve its success through other factors like good governance, sound policies and investment in people.

Yet, the Mauritian experience also shows the drawbacks of the export-based, services-driven model of development in the context of the AI era. The fact that the gains are skewed towards certain industries and the difficulty of extending the utilization of AI throughout the economy means that this model is not without its problems in terms of equity and viability.

11.3 Policy implications for small island developing states

From Mauritius' AI strategy, the following recommendations can be made to other SIDS. It can show how SIDS may be able to create opportunities for themselves in the global digital economy given that they often have well developed education systems and adaptable policy-making processes.

The Mauritian approach is to concentrate on certain areas (such as fintech) in which the country has some measure of competitive advantage rather than trying to compete in all fields and this may well be a model for other SIDS. Likewise, other island states which are in a similar position can learn from Mauritius' efforts to become a bridge between two other markets – in this case the African and the Asian markets.

Nevertheless, the Mauritian experience also shows some problems that SIDS encounter in terms of size, resources and susceptibility to adverse impacts. It highlights the need for global alliances and the transfer of knowledge in the development of AI in local markets.

12. FUTURE OUTLOOK

12.1 Planned initiatives and projects

In the future, Mauritius has set several plans to enhance AI strategy as follows. The government has unveiled plans for an "AI Valley" innovation centre to lure foreign AI firms and support local entrepreneurs. This project that is expected to be under construction by 2025 is to be the physical centre for the advancement of AI and cooperation.

In the education sector, the Ministry of Education has laid down its plan to revamp the entire education system to include AI and data science in all the classes from the primary level to tertiary level. This program's goal is to develop the pipeline of the talented AI specialists that will contribute to the country's goals.

The Mauritius Research and Innovation Council has also recently introduced a new grant scheme for AI research with special emphasis on climate change, health and cybersecurity. This program is designed to encourage more local AI developments and use less imported technologies.

12.2 Potential areas for improvement

As much as there has been progress, there are several aspects that can still be improved. First, there is the issue of how to enhance the process of inclusive AI development. It could include specific interventions to encourage AI use in SMEs and other industry sectors, and measures to promote greater gender, ethnic and other forms of inclusion in the AI workforce.

Secondly, there has to be better regulation of AI because currently there is very little regulating AI. Although Mauritius has revised its data protection laws, there is a requirement of more robust regulation on AI in order to address concerns such as algorithmic audibility, responsibility for the choices made by AI and ethical use of AI.

Thirdly, it is possible to work on the aspects of increasing the effectiveness of the commercialization of AI research. Although the field of AI has expanded in the academic setting, the application of AI has expanded only to a limited extent in the market. This gap may be bridged by enhancing the link between industries and academia, and boosting support for technology transfer.

12.3 Long-term vision for AI in Mauritius

This paper has elucidated on the current state of AI in Mauritius and the government's vision for the future of the country in relation to the technology, which is to advance from being mere recipients of AI technologies to being producers and exporters of the same. This vision looks at Mauritius as an Africa's AI hub and a global player in some sectors of AI.

Some of these are to build AI components that will make the country competitive in areas that the country has the potential to develop in including in the financial services sector, in the context of small island states, and in multilingual settings. The government also sees Mauritius in the front line as a country from the Global South to participate in debating the governance of AI and Ethics.

To this end, there must be a constant investment in research and development of digital technologies, enhancement of the digital infrastructure, and flexible policies that can respond to the dynamics in the technological advancements. It will also require that more attention be paid to the social consequences of AI in order to build social consensus around the move towards this new technology.

13. LESSONS LEARNED AND BEST PRACTICES

13.1 Key success factors

Several factors have been identified to have contributed to the relativity of success of Mauritius' AI strategy as outlined below. First, the proactive and coordinated measures have been implemented by the government bringing together several ministries and agencies which have helped in setting the direction and eliminating policy divergences. Specifically, the creation of an AI Council at the highest level to coordinate the strategy has been most successful.

Secondly, Mauritius has had a long experience in ICT and has a skilled labour force which was important for the development of AI. That is because some of the country's core sectors such as financial services and business process outsourcing have provided natural opportunities for AI adoption and advancement.

The third factor is that Mauritius has an open economy and a favourable business environment that has made it easy for the country to partner internationally and acquire knowledge, which is key to developing AI in the country. The country's political stability and the sound legal system as well as the favorable policies have also contributed to the increased foreign investment in the AI industry.

13.2 Missteps and areas for improvement

However, there are some learnings that can be noted where the organization is not doing well or could improve on. Perhaps, the emphasis on luring the global AI firms in the first phase of the strategy has overshadowed the development of homegrown AI firms in the initial phases of the strategy. A policy that would have been more favorable towards foreign investment while at the same ensuring the encouragement of local businesses could have been more effective.

AI application in the public sector has not advanced as expected owing to factors such as bureaucracy and lack of required expertise. Better change management plans and more extensive training and development of the public sector workers may have faster the process.

There is still work to be done with regards to public engagement and awareness of what AI is and how it is being used. Of course, some public awareness campaigns have been carried out by the government to address the issue but more has to be done to foster a comprehensive understanding of the social impact of AI to garner public support and to ensure that the public is not apprehensive about losing their jobs or having their privacy invaded.

13.3 Transferable strategies for other developing nations

Some of the features of Mauritius' experience might be applicable to other developing countries. The approach of concentrating on certain areas that are more favorable to the country than others could be especially effective for the countries that lack resources.

Mauritius has made partnerships and sharing of knowledge as its pillars and this is a model that can be emulated by other small countries developing their AI. Thus, the strategy of promoting the country as a site for testing AI solutions due to the small territory and relatively high level of development of the infrastructure may be also used by other small states.

The alignment of the AI strategy with other digital transformation, as well as economic diversification agendas sets an example of how AI should be approached within a comprehensive manner. This way, the development of AI is consistent with the general objectives of the country's development.

However, one has to realize that the applicability of these strategies may vary depending on the individual country's level of digital preparedness, human capital, and governance systems.

14. RECOMMENDATIONS

14.1 Strengthen AI Ethics and Governance

It is imperative that a strong and coherent set of AI ethics is created for Mauritius to appropriately govern the use of AI. As reported in KPMG's Global AI Readiness Survey 2021, 86% of the respondents said that organizations should adopt an AI ethics policy. For Mauritius, this could involve

- Creating an independent AI Ethics Board which will include members from the academic community, business, civil society and state. This board could be set up similar to the Centre for Data Ethics and Innovation in the UK which has been discharging this function since 2018.
- Coming up with a National AI Ethics Code, Just like Singapore's Model AI Governance Framework which has been applauded for its applicability in the real world.
- Requiring that AI impact assessments be conducted for high-risk applications of AI and especially in areas such as finance, health, and public services.

To this end, the Mauritian government may have to set aside about 0.5% of its annual ICT budget (estimated to be $150 million in 2023) for the funding of the Ethics Board and other related projects. It could be done in a 1.5 to 2 years time frame with the first step being the creation of the board, then the creation of the ethics code and lastly the implementation of the impact assessment provisions.

14.2 Enhance Inclusive AI Development

For that reason, the support programs for SMEs and traditional sectors should be the priority to achieve the positive impacts of AI in the Mauritian economy. According to the OECD's recent survey (2021), the lack of expertise and resources becomes a barrier for SMEs in adopting AI. To address this, Mauritius could:

- Launch an "AI for All" program that will offer lower costs for AI audit and advice services to SMEs. This could be similar to Singapore's SMEs Go Digital programme which has aided more than 75,000 SMEs to embrace digital solutions from 2017.

- Design strategies for the adoption of AI in the different sectors of the economy such as, textile, tourism and agriculture in liaison with the industry stakeholders.
- Set up an AI Adoption Fund with a view of offering matching grants of up to 50% for SMEs that are adopting the use of AI solutions; the fund should be $10 million over a period of three years.

The implementation could be coordinated by the Ministry of Technology, Communication and Innovation in collaboration with Business Mauritius, the voice of business in the country. The initiative could aim to reach 1,000 SMEs in the first year, scaling up to 5,000 by year three.

14.3 Accelerate Public Sector AI Adoption

The implementation of AI in the public sector is essential for enhancing service delivery and operational effectiveness. A study by Deloitte (2022) revealed that AI could liberate as much as 30% of govt workers' time, hence enabling them to work on more vital responsibilities. To accelerate this in Mauritius:

- Create an extensive training course on AI for the civil servants and try to ensure at least 20% of the public servants (approximately 8000 officials) are trained in AI fundamentals within two years.
- The following measures are proposed: setting up of AI ambassadors in each ministry; identifying ministry-specific AI applications. In this regard, these champions could constitute an inter-ministerial AI working group for sharing of best practices and harmonization of activities.
- Establish an AI PMO in the Prime Minister's Office to lead on the coordination and ensure the adequate technical support to the different ministries.

This could be done through directing 2% of the annual public sector ICT expenditure towards AI initiatives and interventions as well as training of personnel in the public sector with an estimated budget of $200 million in 2023. The Civil Service College can embrace international cooperation such as with organizations like Oxford Internet Institute to design the training programme.

14.4 Boost Local AI Innovation

Improving local AI innovation is important for reference to decrease reliance on imported technology and increase job opportunities. The Global AI Index (2022) revealed that countries that have a high focus on AI R&I reap a lot of economic returns. For Mauritius, this could involve:

Enhancing the funding of applied AI research, the government should create the National AI Research Fund of $20 million for the next five years and concentrate on areas of interest to the nation such as climate change, finance, and health.

- Creating a National Artificial Intelligence Research Centre of Excellence, similar to Canada's Mila or the United Kingdom's Alan Turing Institute to be funded with an initial $10 million.
- Introducing an regulatory sandbox for AI applications as an example, the UK's Financial Conduct Authority's regulatory sandbox which has helped foster innovations in the fintech industry since 2016.
- Implementing a 200% tax rebate for the companies that are investing money in the AI R&D, same as Singapore's Research Incentive Scheme for Companies.

The process could be spearheaded by the Mauritius Research and Innovation Council in association with the universities and other industrial players. They could be sequenced over 3-5 years starting with the creation of the research fund and the regulatory sandbox in year one, the launch of the Center of Excellence in year two and so on.

14.5 Address AI-related Job Displacement

Proactively addressing potential job displacement due to AI is crucial for maintaining social stability and ensuring a just transition. A report by McKinsey Global Institute (2021) shows that approximately 30% of the work could be automated across the globe by the year 2030. For Mauritius, addressing this could involve:

- Investing in large-scale reskilling initiatives that aim to upskill at least 10,000 workers per year from sectors that are at high risk of automation including manufacturing, retail and administrative services through a National AI Skills Transition Strategy.
- Creating an AI Transition Fund of $50 million over five years to offer stipends and training costs to workers during the transition period.
- Expanding unemployment insurance and establishing new job-seekers' benefits for the workers affected by technological advances.

The process could be coordinated by the Ministry of Labour, Industrial Relations, Employment and Training in collaboration with stakeholders such as industry bodies and labour unions. The strategy may be developed in 6-9 months and initial pilot reskilling programs could be initiated in the next one year and expanded subsequently.

14.6 Enhance Data Infrastructure

Strengthening data foundations is critical to advancing AI as well as its integration in a given organization. According to a World Bank report (2021), countries that have a strong data ecosystem are more likely to experience high rates of advancement and adoption of AI technologies. For Mauritius, enhancing data infrastructure could involve:

- Increasing the expenditure to $30 million in the next three years in the expansion of the national data center infrastructure and in upgrading the data connectivity which includes the provision of more submarine cables for the increase in international connectivity.

- Expanding the inventory of high-quality, easy-to-access public datasets across the most significant themes, including healthcare, transportation, and climate to achieve a target of releasing 50 new datasets every year.
- Creating data trusts to enable the sharing of data between companies and organizations in a safe and secure manner, as is being proposed in the UK through the Data Trusts Initiative.

This could be done with the support of the Ministry of Technology, Communication and Innovation together with Statistics Mauritius and the private sector. It is estimated that the data trust framework could be created in a year with the first trusts to be established in the second year.

14.7 Strengthen International Collaborations

Due to the size of Mauritius, such cooperation is vital to obtain necessary knowledge and equipment. The MIT Technology Review (2022) noted how the smaller countries such as Estonia have used strategic collaborations to achieve better results in AI. For Mauritius, this could involve:

- Developing strategic cooperation with the leading nations and organizations in the field of AI, plans to establish at least five such cooperation within two years.
- Engaging in the global AI governance discourse and applying for membership in bodies such as the Global Partnership on AI.
- Setting up an AI Visiting Fellows Scheme, which will host 20-30 international scholars in AI in Mauritius every year for short duration engagements.

The management could be under the Ministry of Foreign Affairs together with the assistance of the Ministry of Technology. Some of the initiatives such as the visiting fellows program could be initiated and implemented within one year while the others such as the development of strategic partnership and enhancing the participation in global forums could be ongoing for 2-3 years.

14.8 Improve AI Education and Public Awareness

Improving AI literacy in the general population is essential for the widespread implementation of AI and handling public perception. As per the PwC report of 2022, it was seen that countries that have higher AI literacy rate are likely to implement AI at a faster pace and have a better perception regarding AI. For Mauritius, this could involve:

- Promoting the inclusion of AI and data science education at all levels of the education system from the basic education to the tertiary level. It could involve incorporating the fundamental knowledge of coding and artificial intelligence in the primary school syllabus and then furthering the study of artificial intelligence in secondary and tertiary institutions.

- Creating a nationwide campaign on AI literacy targeting to cover not less than 50% of the adult population within the next two years using mass media, community training and online tutorials.
- Creating AI demonstration centers in each of the major cities to display the use of AI and allow the public to interact with it.

The implementation may be conducted by the Ministry of Education with support from the Ministry of Technology and media houses. The implementation of the curriculum changes could be done gradually and may take two to three years while the public awareness campaign could be carried out within 6-9 months.

14.9 Develop AI Specializations

By identifying specific areas of AI that are related to Mauritius' competitive advantages, the country can develop a distinct market position in the global AI market. The Harvard Business Review (2022) provided insights as to how smaller countries can leverage AI proliferation and attainment of success. For Mauritius, this could involve:

- Defining at least 3-5 subfields in AI to focus on such as AI for climate change in small islands, AI for multilingual environments, or AI for financial inclusion in emerging markets.
- Creating Centers of excellence in every specialization that has been chosen with a dedicated funding of $5 million for each centre for the next five years.
- Recruiting specialized AI professionals in these domains through funded scholarship programs and collaboration with corporations.

Coordination of the implementation could be done by the Mauritius Research and Innovation Council with the support of the universities and industrial allies. It is possible to complete the identification of specializations and development of Centers of Excellence within 18-24 months.

14.10 Enhance Sustainability of AI Development

It is important to note that sustainability of AI development is vital especially for a small island nation which is prone to effects of climate change. The study by the AI Now Institute (2023) pointed to energy consumption of AI systems as a big issue worldwide. For Mauritius, addressing this could involve:

- Enforcing energy efficiency measures through the regulation of the AI infrastructure such that any new data center must attain a PUE of 1.2 or lower.
- Promoting the use of renewable energy in the tech industry through tax exemptions and research funding to ensure that 50% of AI-based facilities are powered by renewable energy sources in the next five years.

- Creating a framework for green AI that is coherent with the general strategy of Mauritius for sustainable development and carbon footprint minimization in AI.

This could be done by the Ministry of Energy and Public Utilities in partnership with the Ministry of Environment. The energy efficiency standards could be implemented in the next 2-3 years while the renewable energy incentives could be made within a year.

14.11 Improve AI Monitoring and Evaluation

Proper monitoring and evaluation would help the policy maker in the necessary changes in policies and the efficacy of the AI strategy. The OECD (2023) underlines that evidence-based approaches should be adopted in AI policy design. For Mauritius, this could involve:For Mauritius, this could involve:

- Developing a systematic approach to track the effects of AI in various industries, such as economic indicators, employment, and SDGs.
- Issuing an annual "State of AI in Mauritius" report to ensure that the public is informed on the ongoing developments of the national AI strategy.
- Surveying the population's perception of AI and how it affects them and updating the policies that regulate the use of AI.

The responsibility of implementation could be with Statistics Mauritius in partnership with the AI Council. The monitoring framework could be developed within 6-9 months; the first comprehensive report could be published by the end of the first year of implementation.

14.12 Foster AI Entrepreneurship

Promoting the growth of a strong AI start-up culture is important for the further development of innovation and the generation of valuable employment opportunities. According to a report by Startup Genome (2023), countries that have a proclivity to nurturing strong AI startups reaps more economic returns from AI. For Mauritius, fostering AI entrepreneurship could involve:For Mauritius, fostering AI entrepreneurship could involve:

- Creating a specialized AI Startup Incubator in which we will offer co-working space, guidance and $50-70K of seed capital to 20-30 startups per year.
- Establishing an AI Venture Fund with an initial capital of $30 million in collaboration with private investors to support new AI-based enterprises.
- Providing assistance in acquiring computing resources in collaboration with cloud service providers and providing such startups with credits of up to $100,000.
- Holding an Annual "AI Mauritius" conference and a Startup Competition to create awareness of local ability and to invite global investors.

This could be done by the Economic Development Board in collaboration with local and international venture capitalists. The incubator and venture fund could be created in 12-18 months, the first batch of startups can be admitted by the end of the second year.

The following are detailed recommendations that will help in the course of improving the implementation of the AI strategy in Mauritius. These are ambitious yet plausible given the country's circumstances and they if implemented in stages over the next 3-5 years will go a long way in enhancing Mauritius' standing in the international AI map.

CONCLUSION

Mauritius's AI strategy is one of the finest examples of how a small island developing state is seeking to place itself on the global map for AI. It is still premature to make conclusions, however, the strategy has shown a certain potential in terms of diversification of the economy, increase of the technological level, and the establishment of Mauritius as the country which focuses on the development of AI.

The country's experience provides useful insights for other developing countries including how to build on the strengths, engage international cooperation, and embrace a whole-of-government approach in AI development. Nevertheless, it also provides some insights into the difficulties of promoting inclusive and sustainable development with AI in a small and open economy.

Some of the potential issues that will shape the future of AI in Mauritius include how to increase the level of local AI development, how to extend the impact of AI across the economy and how to address the challenges related to the ethical and legal framework of AI governance. It will be important to observe the country's future capacity to solve these issues while continuing the AI development at the same pace.

Therefore, the experiences of Mauritius in the development of AI can be ideal to study as a small state how they can approach transformative technologies to support development. It captures the potential and the risks of using AI for development in the Global South and provides lessons that may be relevant for other developing countries.

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