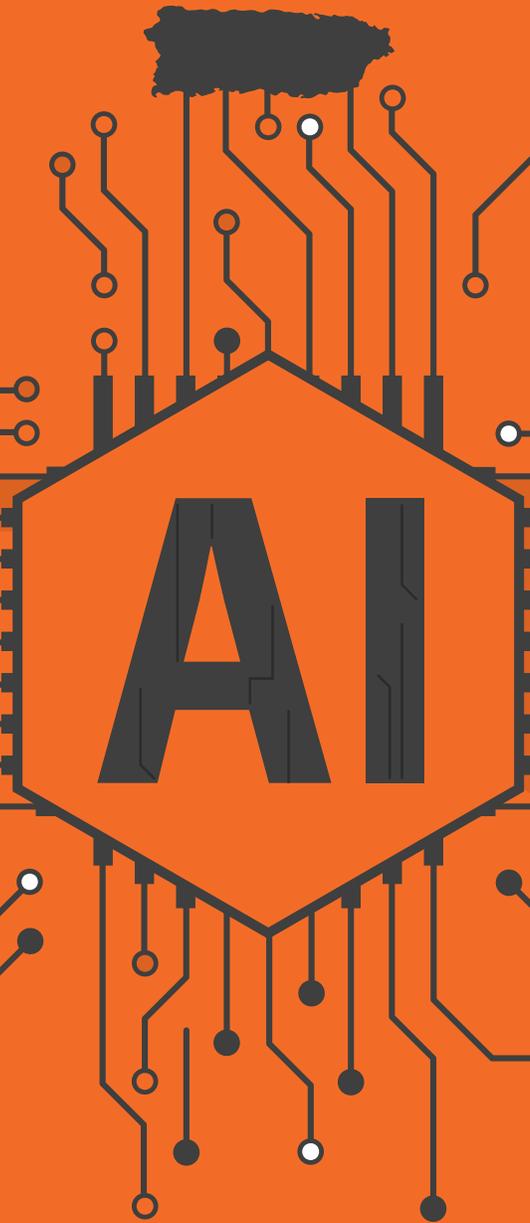


Leveraging AI for Economic Development and Shaping the Future in Puerto Rico



Fideicomiso para Ciencia,
Tecnología e Investigación
de Puerto Rico

TABLA DE CONTENIDO

Introduction	3
Why a Puerto Rico AI Strategy?	4
Vision and Approach	5
Potential Projects	6
1. AI in Healthcare	
2. Smart Cities	
3. AI-Driven Sustainable Agriculture Initiative for Food Security in Puerto Rico	
4. Personalized Education through Adaptive Learning and Assessment	
5. AI-Enhanced Disaster Emergency Management System for Puerto Rico	
Building an AI Ecosystem	15
Conclusion	17





INTRODUCTION

Artificial Intelligence (AI) is transforming industries worldwide, offering unprecedented economic **growth and innovation** opportunities.

With its unique blend of talent, infrastructure, and strategic location, Puerto Rico is well-positioned to harness AI's power to drive economic development and **improve the quality of life for its residents.**

Why a Puerto Rico AI Strategy?

1. Economic Growth

AI has the potential to significantly boost Puerto Rico's economy by enhancing productivity, creating new jobs, and fostering innovation across various sectors.

2. Global Competitiveness

A national AI strategy can position Puerto Rico as a leader in AI, attracting investments, talent, and partnerships worldwide.

3. Improved Quality of Life

AI can contribute to solving local challenges, such as healthcare, education, and infrastructure, improving Puerto Ricans' overall quality of life.

4. Sustainable Development

AI technologies can support sustainable agriculture, energy, and resource management practices, aligning with global sustainability goals.



VISION AND APPROACH

VISION

To establish Puerto Rico as a globally recognized hub for AI innovation, driving economic growth, enhancing quality of life, and promoting sustainable development through strategic investments in technology, education, and collaboration.

- Puerto Rico will develop AI solutions for our strategic economic development sectors: Lifesciences, Aerospace, and Silver Economy
- We will use AI to generate economic growth and to improve the quality of life of all
- citizens
- Puerto Rico's workforce and citizens will understand AI technologies and will develop the necessary skills and competencies to participate in the AI global economy actively

APPROACH

1. Inclusive Development

Ensure that AI development benefits all sectors of society, addressing disparities and promoting inclusive growth.

2. Collaborative Ecosystem

Foster a collaborative environment among academia, industry, and government to drive AI innovation and application.

3. Ethical AI

Promote the development and deployment of AI ethically and responsibly, ensuring privacy, security, and fairness.

4. Continuous Learning

Encourage lifelong learning and upskilling to prepare the workforce for the AI-driven economy.

Potential Projects

AI in Healthcare

Objective

To improve the control and management of chronic diseases such as diabetes, hypertension, and high cholesterol.

Key Initiatives:

- Personalized Risk Scoring: AI analyzes clinical data, medical images, health behaviors, and genomic data to create personalized individual risk scores. These scores help individuals take preventive measures and receive earlier, more targeted interventions.
- Support for Healthcare Providers: AI assists primary care doctors in developing personalized care plans and monitoring patient progress, alerting care teams to patients whose conditions require timely action.
- Empowering Patients: AI enables patients to self-manage their chronic conditions by monitoring their health status, receiving reminders for healthy behaviors, and scheduling check-ups.

Benefits:

- Improved patient health outcomes and empowerment to manage chronic diseases more effectively.
- Earlier identification and intensive management of patients at higher risk of complications.
- Increased productivity for healthcare providers, allowing them to assist patients better.



Potential Projects

Smart Cities

Implement AI technologies in urban planning, traffic management, and public safety to create more intelligent, efficient cities.

Objective

To deliver state and municipal services that are more responsive, reliable, and timely.

Key Initiatives:

- AI-Powered Chatbot: An AI chatbot guides residents when reporting state and municipal issues, helping them identify the correct agency and prompting for mandatory case details in real time. This reduces the need for agencies to follow up with additional calls and gather information.
- Pre-Emptive Maintenance: AI algorithms and sensors deployed in neighborhoods, such as electrical and water utilities facilities and equipment, alert authorities to potential faults before they occur, allowing for preemptive action and minimizing inconvenience to residents.
- Enhanced Urban Planning: AI helps understand how residents use neighborhood facilities, enabling better planning and the development of facilities that more effectively serve the community's needs.

Benefits:

- More efficient and seamless reporting of state and municipal issues by residents.
- Better-maintained estates and more reliable municipal infrastructure and services.
- Improved planning and building of facilities that better serve residents' needs.
- Increased productivity for healthcare providers, allowing them to assist patients better.



Potential Projects

AI-Driven Sustainable Agriculture Initiative for Food Security in Puerto Rico

To enhance agricultural productivity and sustainability, utilize AI for precision farming, vector and pest control, and crop monitoring.

Objective

To develop and implement an AI-powered agricultural system in Puerto Rico that enhances food security by increasing crop yields, optimizing resource use, and promoting sustainable farming practices.

Key Initiatives:

Precision Agriculture and Crop Management:

- **AI-Powered Soil and Crop Analysis:** Utilize AI to analyze soil health, nutrient levels, and moisture content across various regions of Puerto Rico. AI models can give farmers real-time recommendations on crop rotation, fertilization, and irrigation practices to optimize yields.
- **Predictive Crop Yield Modeling:** Implement AI algorithms that predict crop yields based on current weather patterns, historical data, and real-time inputs from IoT sensors deployed in fields. This allows farmers to make informed decisions on planting and harvesting, reducing waste and increasing productivity.
- **Pest and Disease Monitoring:** Use AI-powered image recognition systems to detect early signs of pests and diseases in crops. AI can help identify and classify pests and suggest the most effective and environmentally friendly treatment methods.



Smart Irrigation and Water Management:

- **AI-Driven Irrigation Systems:** Develop AI-controlled irrigation systems that automatically adjust water usage based on real-time weather data, soil moisture levels, and crop requirements. This ensures crops receive the right amount of water, reducing waste and conserving resources.

Water Resource Management:

Implement AI to monitor and manage water resources on a larger scale, optimizing the use of reservoirs, rivers, and groundwater to ensure a sustainable water supply for agriculture.

Supply Chain Optimization and Market Access:

- **AI-Powered Supply Chain Management:** Use AI to optimize the agricultural supply chain, from farm to market. AI can predict demand, manage inventory, and reduce spoilage by optimizing transportation routes and storage conditions.
- **Farmers' Market Access Platform:** Create an AI-driven platform that connects farmers directly with consumers, restaurants, and retailers. This platform can use
- AI to match supply with demand, suggest optimal pricing, and reduce the middleman, ensuring farmers receive fair compensation for their produce.

Sustainable Farming Practices and Climate Resilience:

- **AI for Climate-Resilient Farming:** Implement AI models that analyze climate data and recommend resilient crop varieties and farming practices suited to Puerto Rico's changing climate. AI can help farmers adapt to weather extremes and unpredictable conditions, ensuring consistent food production.
- **Carbon Footprint Reduction:** Use AI to monitor and manage farming practices that minimize carbon emissions and promote sustainable agriculture, such as precision fertilization, reduced tillage, and organic farming.

Benefits:

Increased Crop Yields and Food Production:

AI-driven precision agriculture ensures that crops receive optimal care, leading to higher yields and more efficient use of resources. This directly contributes to increased food production and food security in Puerto Rico.

Resource Efficiency and Environmental Sustainability:

Smart irrigation and water management systems reduce water wastage and promote sustainable use of natural resources. AI helps farmers implement environmentally friendly practices that maintain soil health and biodiversity.

Improved Market Access and Farmer Livelihoods:

AI-powered platforms connect farmers with markets, reducing dependence on intermediaries and ensuring fair prices for produce. This improves the livelihoods of local farmers and strengthens the agricultural economy.

Resilience to Climate Change:

AI helps farmers adapt to the impacts of climate change by recommending resilient crops and farming practices. This ensures consistent food production despite changing weather patterns and reduces the risk of crop failure.

Data-Driven Decision Making:

AI provides farmers with actionable insights based on real-time data, enabling them to make informed decisions that optimize productivity and sustainability. This leads to better overall farm management and long-term food security.

By implementing an AI-driven sustainable agriculture initiative, Puerto Rico can significantly enhance its food security, support local farmers, and promote sustainable agricultural practices that are resilient to climate change. This project would increase the availability of locally produced food and contribute to the island's overall economic and environmental well-being.



Potential Projects

Personalized Education through Adaptive Learning and Assessment

Establish AI-focused educational programs and research centers to cultivate local talent and drive innovation.

Objective

To provide more personalized learning and assessment for every student.

Key Initiatives:

Adaptive Learning System:

Develop an Adaptive Learning System that customizes learning pathways for each student based on their responses to learning materials and activities.

Automated Marking System:

AI helps teachers assess students' work more efficiently by automatically marking open-ended responses and essays, providing quick feedback.

AI Learning Companion:

This tool supports students' holistic development by motivating them during challenging tasks, helping them reflect on their learning experiences, and recommending further learning activities.

Benefits:

- More personalized learning experiences tailored to individual strengths and weaknesses.
- Reduced time teachers spend on routine assessment tasks, allowing them to focus on guiding students more effectively.
- Better support for students with diverse learning needs, leading to improved achievement levels.



Potential Projects

AI-Enhanced Disaster Emergency Management System for Puerto Rico

Develop AI systems for early warning, response, and recovery to enhance resilience against natural disasters.

Objective

To develop and implement an AI-powered disaster emergency management system in Puerto Rico that improves the efficiency and effectiveness of disaster response, minimizes loss of life and property, and enhances resilience against natural disasters.

Key Initiatives:

Real-Time Risk Assessment and Early Warning:

- AI-powered predictive Analytics: Utilize AI algorithms to analyze meteorological data, seismic activity, and historical disaster patterns to predict the likelihood, timing, and impact of natural disasters such as hurricanes, earthquakes, and floods.

Dynamic Risk Mapping:

- Implement AI to create and update real-time risk maps that identify high-risk areas and predict the potential severity of impact. These maps would be accessible to government agencies, first responders, and the public through a user-friendly platform.

Automated Early Warning Systems:

- Deploy AI-driven communication systems that automatically issue warnings to residents in at-risk areas via SMS, social media, and emergency broadcast systems, allowing for timely evacuation and preparedness.



Resource Allocation and Logistics Optimization:

- **AI-Based Resource Management:** Develop AI tools to optimize the allocation of emergency resources (such as personnel, medical supplies, and food) based on the predicted impact of the disaster. This includes real-time adjustments as the situation evolves.

Smart Supply Chain Management:

- Use AI to monitor and manage the supply chain of critical resources, ensuring that supplies are pre-positioned in areas likely to be most affected. AI can also assist in identifying alternative supply routes in the event of infrastructure damage.

First Responder Deployment:

- Implement AI systems to optimize the deployment of first responders, ensuring they reach the most critical areas quickly and efficiently.

Post-Disaster Damage Assessment and Recovery:

- **AI-Driven Damage Assessment:**
Use AI and drone technology to conduct large-scale damage assessments immediately after a disaster. AI can analyze aerial and satellite images to determine the damage's extent, prioritizing areas needing immediate assistance.
- **Automated Reporting and Insurance Claims:**
Develop AI tools that assist in generating reports for disaster recovery efforts and streamline insurance claims processing for affected residents and businesses.

Resilient Infrastructure Planning:

- Use AI insights from post-disaster data to inform the planning and reconstruction of infrastructure, ensuring it is more resilient to future disasters.

Benefits:

Improved Disaster Preparedness and Response:

- By leveraging AI, Puerto Rico can significantly enhance its ability to predict, prepare for, and respond to natural disasters, potentially saving lives and reducing economic losses.

Efficient Resource Utilization:

- AI-driven logistics and resource management ensure that emergency supplies and personnel are optimally deployed, minimizing wastage and addressing the most critical needs first.

Faster Recovery and Reconstruction:

- With AI-driven damage assessments and data-driven reconstruction efforts, Puerto Rico can expedite recovery processes and rebuild to mitigate future risks.

Increased Public Safety and Awareness:

- AI-enhanced early warning systems provide residents with timely and accurate information, enabling them to take necessary precautions and evacuate when needed.

Data-Driven Policy Making:

- The data collected and analyzed by AI during and after disasters can inform future policy decisions, improving overall resilience and disaster management strategies in Puerto Rico.
- By implementing an AI-powered disaster emergency management system, Puerto Rico can strengthen its disaster response capabilities, enhance public safety, and build a more resilient

Building an AI Ecosystem

1. Human Resources

- **Education and Training:** Invest in AI education at all levels, from primary schools to universities, and offer continuous professional development programs.
- **Talent Management:** Create incentives and opportunities to retain local AI talent and to attract top AI talent worldwide.

2. Infrastructure

- **Rapidly scale investment in R&D and direct researchers towards Deep Tech.** Match R&D spending with those of advanced economies. In the next five years, spending as a percentage of GDP (intensity rate) should be increased to 1%, compared to the current .62%.
- **Create an enabling environment for Generative AI:** Support the creation of AI research centers, educational programs, and infrastructure enhancements to sustain Puerto Rico's AI ecosystem.
- **Establish a fast permit process for startups:** enable the process to launch startups in less than 24 hours in a way that creates the minimal amount of regulatory friction for the lowest possible cost.
- **Enable alternative forms of financing for startups and strengthen incubator and accelerator networks.**
- **Connectivity:** Ensure robust internet connectivity across the island to facilitate AI deployment and usage.

3. Demographics

- **Expand digital literacy into every corner of Puerto Rico Society:** Support initiatives to train our citizens with new knowledge and advanced technologies to ensure a workforce is prepared to face the latest, ever-changing nature of work.
- **Youth Engagement:** Engage the younger generation in AI through educational programs, competitions, and workshops.
- **Diverse Workforce:** Promote diversity and inclusion in AI fields to harness various perspectives and ideas.

Collaboration Framework

Academia

1.

- **Research Collaboration:**
Encourage partnerships between universities and industry to drive AI research and innovation.
- **Curriculum Development:**
Develop AI-centric curricula to equip students with the necessary skills for the AI economy.

Private Sector

2.

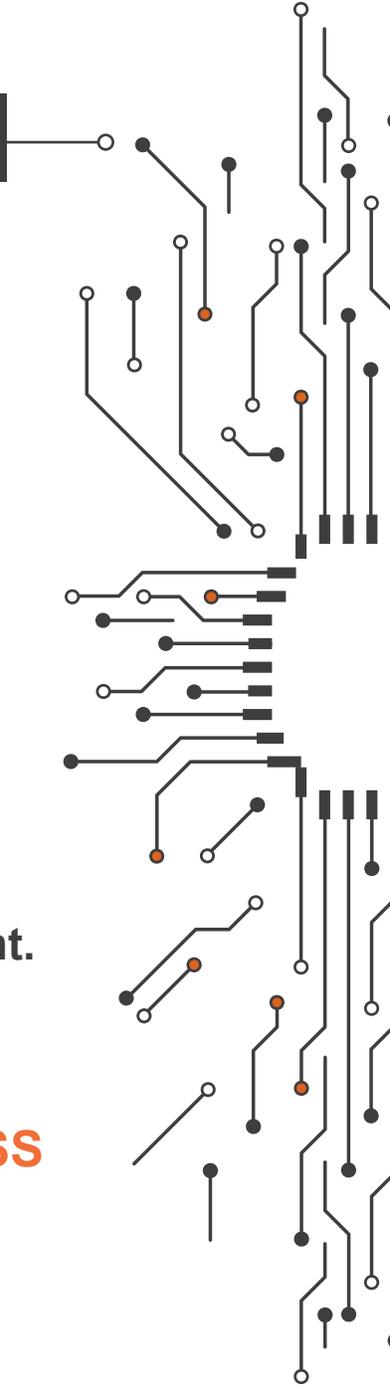
- **Investment and Funding:**
Mobilize private sector investments in AI startups and projects.
- **Industry-Academia Linkages:**
Facilitate industry-academia linkages to ensure research meets market needs.

Government

3.

- **Policy and Regulation:**
Develop policies and regulations that promote AI innovation while ensuring ethical standards.
- **Public Sector Adoption:**
Implement AI in public sector operations to improve efficiency and service delivery.
- **Funding and Grants:**
Through the Puerto Rico Science Technology and Research Trust provide funding for grants, AI research, development, and implementation projects.

CONCLUSION

A decorative graphic on the right side of the page, resembling a circuit board or a network diagram. It consists of various lines, dots, and nodes in black, white, and orange, extending vertically and horizontally across the right half of the page.

Puerto Rico has a unique opportunity to become a leader in the AI revolution.

By leveraging its human resources, infrastructure, and demographic strengths and fostering collaboration among academia, industry, and government, Puerto Rico can develop a comprehensive AI strategy that drives economic growth, enhances quality of life, and promotes sustainable development.

Together, WE CAN BUILD a future where AI catalyzes INNOVATION AND PROGRESS

Leveraging AI for Economic Development and Shaping the Future in Puerto Rico



Fideicomiso para Ciencia,
Tecnología e Investigación
de Puerto Rico

1.787.523.1592

www.prsciencetrust.org

info@prsciencetrust.org

