



# ARTIFICIAL INTELLIGENCE



DEPARTMENT OF SCIENCE AND TECHNOLOGY  
PHILIPPINE COUNCIL  
FOR INDUSTRY, ENERGY  
AND EMERGING TECHNOLOGY  
RESEARCH AND DEVELOPMENT  
(DOST-PCIEERD)

# Artificial Intelligence Roadmap

Updated as of 21 September 2023

Legend (Text Font): Ongoing Done Target

## OVERALL STRATEGIES

- Facilities and Services**
- Establishment of AI Data Centers with High-Performance Computing Servers
  - Establishment of Cloud Platforms and Services for AI Researchers
- Human Resources**
- Capability building through AI conferences and workshops
  - Establishment of AI innovation ecosystem to strengthen linkages
  - Implementation of massive open online courses on various data analytics pathways including data associate, data steward, data engineer, data scientist, data analyst, and analytics manager
  - Establishment of partnerships between international large tech companies and local universities through BigTech approach
  - Implementation of upskilling program approach for the current workforce with microcertifications focusing on AI applications

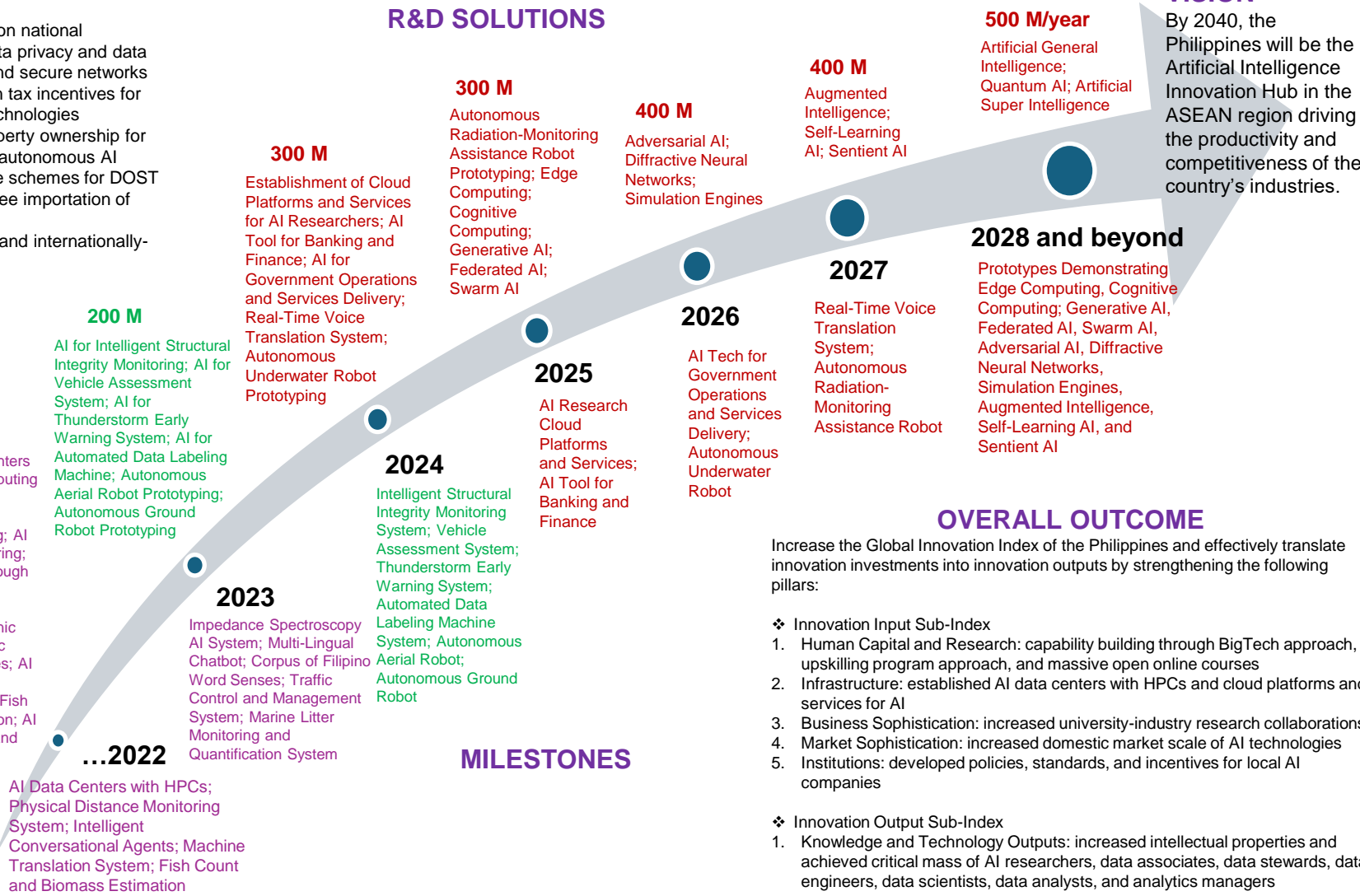
- S&T Policies**
- Collaboration with DICT on national cybersecurity plan for data privacy and data exchange with reliable and secure networks
  - Collaboration with DTI on tax incentives for industries adopting AI technologies
  - Policy on intellectual property ownership for inventions generated by autonomous AI
  - Development of incentive schemes for DOST Projects including duty-free importation of capital outlay
  - AI ethics for responsible and internationally-aligned use of AI

- R&D Technologies (Mission-Driven Programs)**
- AI for Industries  
Intelligent Structural Integrity Monitoring; Vehicle Assessment System; Faster Impedance Spectroscopy Analysis; AI Tool for Banking and Finance; AI for Government Operations and Services Delivery
- AI for Health and Education  
Multi-lingual Chatbot for Health Monitoring; Physical Distance Monitoring; Man-Machine Interaction through Conversational Agents; Bidirectional Neural Machine Translation System; Diachronic Representation and Linguistic Study of Filipino Word Senses; and Real-Time Voice Translation System
- AI for Mobility, Environment, and Disaster Risk Reduction  
Traffic Control and Management System; Fish Count and Biomass Estimation; Marine Litter Monitoring and Quantification; Thunderstorm Early Warning System

- AI for Cross-Cutting Applications  
Automated Data Labeling Machine; Autonomous Aerial Robot; Autonomous Ground Robot, Autonomous Underwater Robot; Autonomous Radiation-Monitoring Assistance Robot

- Emerging AI Tech Platforms  
Edge Computing; Cognitive Computing; Generative AI; Federated AI; Swarm AI; Adversarial AI; Diffractive Neural Networks; Simulation Engines; Augmented Intelligence; Self-Learning AI; Sentient AI; Artificial General Intelligence; Quantum AI; Artificial Super Intelligence

## R&D SOLUTIONS



**VISION**  
By 2040, the Philippines will be the Artificial Intelligence Innovation Hub in the ASEAN region driving the productivity and competitiveness of the country's industries.

## OVERALL OUTCOME

- Increase the Global Innovation Index of the Philippines and effectively translate innovation investments into innovation outputs by strengthening the following pillars:
- ❖ Innovation Input Sub-Index
    - Human Capital and Research: capability building through BigTech approach, upskilling program approach, and massive open online courses
    - Infrastructure: established AI data centers with HPCs and cloud platforms and services for AI
    - Business Sophistication: increased university-industry research collaborations
    - Market Sophistication: increased domestic market scale of AI technologies
    - Institutions: developed policies, standards, and incentives for local AI companies
  - ❖ Innovation Output Sub-Index
    - Knowledge and Technology Outputs: increased intellectual properties and achieved critical mass of AI researchers, data associates, data stewards, data engineers, data scientists, data analysts, and analytics managers

# List of Artificial Intelligence Projects (for the whole duration of the roadmap)

R&D Technologies	Project Title	Budget Allocation ('000)							Status
		2022	2023	2024	2025	2026	2027	2028	
Artificial Intelligence	Program: Philippine Sky Artificial Intelligence Program (SkAI-Pinas) Project 1. Automated Labeling Machine - Large-Scale Initiative (ALaM-LSI)	48,310,532.16	23,032,430.36						Ongoing (DOST-GIA) (PCIEERD-GIA)
	Program: Philippine Sky Artificial Intelligence Program (SkAI-Pinas) Project 2. ASTI-Automated Labeling Machine (ASTI-ALaM)	61,739,080.52	24,115,217.60	57,909,420.33					Ongoing (DOST-GIA) (PCIEERD-GIA)
	"Program: Program: Autonomous Societally Inspired Mission Oriented Vehicles (ASIMOV) Project 1: Harmonized Aerial Watch and Knowledge-based Survey (HAWKS) "	15,393,057.00	7,103,057.00						Ongoing (PCIEERD-GIA)
	"Program: Program: Autonomous Societally Inspired Mission Oriented Vehicles (ASIMOV) Project 2: ROAMER (Robot for Optimized and Autonomous Mission-Enhancement Responses)"	9,408,272.00	7,652,296.60	17,014,406.88					Ongoing (PCIEERD-GIA)
	[CRADLE] Unistar Automated Repossessed Motorcycle Assessment System (Unistar ARMAS)	2,385,504.00	2,340,504.00						Ongoing (DOST-GIA)
	AI-TEWS: Development of an AI-assisted Thunderstorm Early Warning System from Analysis of Doppler Radar Data	6,046,744.22	3,553,771.24						Ongoing (PCIEERD-GIA)



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		2022	2023	2024	2025	2026	2027	2028	
Artificial Intelligence	Intelligent Structural Health Monitoring via Mesh of Tremor Sensor	5,357,260.00	6,147,668.00						Ongoing (PCIEERD-GIA)
	SpaceBetweenUs: A Computer Vision Application for Physical Distancing Monitoring in Public Areas	1,699.090.00							Completed (PCIEERD-GIA)
	A Mobile-Web Bidirectional Neural Machine Translation System for Filipino and Cebuano								Completed in 2021 (PCIEERD-GIA)
	Cost-effective Technology for Monitoring and Quantifying Benthic Area Covered by Marine Litter in Shallow Coastal Areas	2,603,544.00							Completed (PCIEERD-GIA)
	Development of a CNN and RNN Topology for Impedance Spectroscopy Analysis	2,156,056.00							Completed (PCIEERD-GIA)
	Development of Multi-lingual Chatbot for Health Monitoring of Public School Children	7,410,108.00							Completed (PCIEERD-GIA)
	Design and Development of Intelligent Traffic Control and Management System	2,203,750.00							Completed (PCIEERD-GIA)
	[CRADLE] Diachronic Representation and Linguistic Study of Filipino Word Senses Across Social and Digital Media Contexts	2,408,654.40							Completed (DOST-GIA)
	[CRADLE] A Lightweight Edge Computer Vision Solution for Smart and Efficient Traffic Management		4,942,302.10						Ongoing (DOST-GIA)

