

Optics & Photonics

Instrumentation

Imaging

Optical
Information and
Communication

Manufacturing



Optics & Photonics Roadmap

Updated as of 16 February 2024

OVERALL STRATEGIES

Needs for Government Facilities and Lab

- Continuous support for ADMATEL and AMCEN
- Establishment of irradiation facilities in Visayas and Mindanao to cater to the industry sector in the region

Needs for Human Resources

- Increase awareness of Optics and Photonics in STEM curriculum, in industry and among consumers
- Send 10 researchers abroad to raise local talent to global standards by providing exposure and training in renowned research laboratories
- Establish programs to obtain visibility into industry needs and open channels for collaboration (e.g. internships, immersions)
- Introduce targeted training electives in Optics and Photonics to promote employment readiness of graduates for certain industry applications
- Balik Scientist Program to consolidate resources and lead R&D and collaboration efforts in the field
- Improve workforce preparation for opportunities with multinational partners

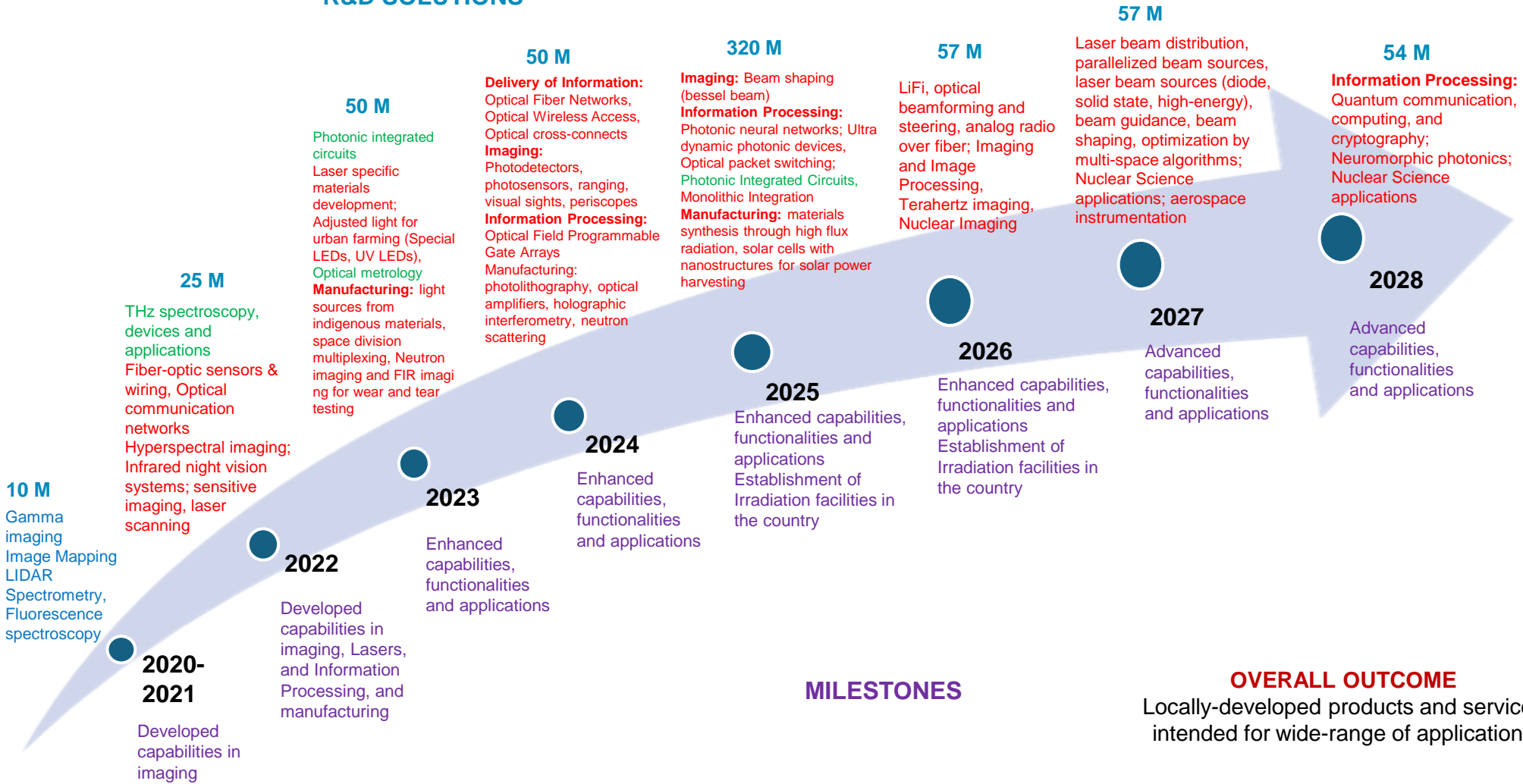
R&D Program / Project Needs

- Build and publish database with information regarding technology researches, publications, laboratories and equipment, and skills developed
- Partner with at least 10 entities for R&D applications and infrastructure co-development
- PATHS Center R&D project: THz Measurements for Quality Assurance of Semiconductor and Aerospace Devices (2022-2024)

S&T Policy Initiatives

- Ensure communication of government policy incentives and benefits to stakeholders

R&D SOLUTIONS



VISION

Provision of enabling technologies for applications beneficial to society.

MILESTONES

OVERALL OUTCOME

Locally-developed products and services intended for wide-range of applications



List of Optics & Photonics Projects (for the whole duration of the roadmap)

R&D Technologies	Project Title	Budget Allocation ('000)							Status
		2022	2023	2024	2025	2026	2027	2028	
Optics and Photonics	Project 4. THz Spectroscopic Fingerprinting of Controlled Substances Relevant to Human Health and Security	15,661,653.00							Completed (PCIEERD-GIA)
Optics and Photonics	Project 1: Kepler-Equation-in-a-Photonics-Chip: A leapfrogging technology to calculate multiple satellites' positions using PIC-based optical analogue to Kepler's Equation	7,498,263.54	6,220,050.36						Ongoing (PCIEERD-GIA)
Optics and Photonics	P2: Photonic Integrated Circuit (PIC)-based Linearized Optical Frequency Discriminator filter for 5G Applications	4,442,702.70	2,462,743.20						Ongoing (PCIEERD-GIA)
Optics and Photonics	THz Project 1. MBE Growth InGaAs and Heterostructures Suuited for Telecom-wavelength Excited TeraHertz Device Applications		17,073,019.20	8,785,519.20					Ongoing (PCIEERD-GIA)
Optics and Photonics	THz Project 2: Development ofLow-cost, Fast-scan Terahertz Spectroscopy forReal World Applications		23,838,599.20	7,326,099.20					Ongoing (PCIEERD-GIA)



List of Optics & Photonics Projects (for the whole duration of the roadmap)

R&D Technologies	Project Title	Budget Allocation ('000)							Status
		2022	2023	2024	2025	2026	2027	2028	
Optics and Photonics	Microwave Photonics Devices for Optical Access Network and Sensing Application using microring resonator (MRR)-based Photonics Integrated Circuits and Optical Fibers		7,725,062.62	3,195,317.00	4,079,602.00				Ongoing (PCIEERD-GIA) c/o PCMD
Optics and Photonics	Optically Controlled, Active and Non-Contact Micro-Rheometer for Industrial and Medical Applications			34,214,480.00	3,493,480.00	3,020,480.00			Ongoing (DOST-GIA)
Optics and Photonics	PECTIN-CARRAGEENAN MIXTURES: High Precision Characterization of Hydrogel Heterogeneity Properties with Optical Tweezers and FESEM Imaging	1,887,830.00							Completed (PCIEERD-GIA)
Optics and Photonics	Image Mapping of Energy Conversion Efficiency and Other Parameters Across Solar Cell Active Areas using Photoexcitation and Photothermal Effects	800,454.40							Completed (PCIEERD-GIA)
Optics and Photonics	Development of a GAMMA Computed Tomography Imaging Device for Industrial Applications (GAIA)	4,995,628.60							Completed (DOST-GIA)
Optics and Photonics	Development of Theoretical and Computational Models Based on Percolation Theory Leading Towards Durable Material Design	1,077,500.00							Completed (DOST-GIA)

