

ICT Innovations

Cybersecurity

Connectivity and
Communications
(5G/6G)

Computing and
Data Science/ Data
Ontology

ICT Innovations Roadmap

Updated as of 21 September 2023

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DONE	ONGOING	TARGET
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OVERALL STRATEGIES

Facilities and Services

- Establishment of Long-Term Evolution (LTE) base station in remote and isolated rural areas as resilient information infrastructure
- Upgrading of high-performance computing and cloud facility
- Establishment of information system infrastructure within DOST
- Establishment of 5G/6G Ecosystem Innovation Center
- Partnership with other local government agencies in codeveloping wireless communication infrastructure upgrades

Human Resources

- Implementation of blockchain training and workshop
- Updating of curriculum, training of students, and upskilling of workforce in computing, connectivity, and security

R&D Technologies

Computing and Data Science

- Application of blockchain technology for royalty monitoring and intellectual property processing, education, government services, and asset management
- Application of data ontology and data archiving for DOST public services
- R&D on sovereign cloud computing
- R&D on distributed computing / Web 3.0
- Development of micromotes
- R&D on exascale computing
- R&D on minerless blockchain
- R&D on quantum safe blockchain

Connectivity / Communications:

- Development of error-resilient technique for video communications
- Development of secured command and control communication link system
- Development of swarm communication
- Development of multipath transmission control protocol, application framework, and routing metrics for cooperative community networks
- Application of datacasting for distance and remote learning utilizing community LTE networks and TV frequencies
- Development of software-defined radio platforms and techniques
- Prototyping of cognitive radio
- R&D addressing wave spectrum challenges with 5G technology
- Development of low power wide area networks
- Development of WiGig prototypes
- Prototyping of 6G technology chip

R&D Technologies

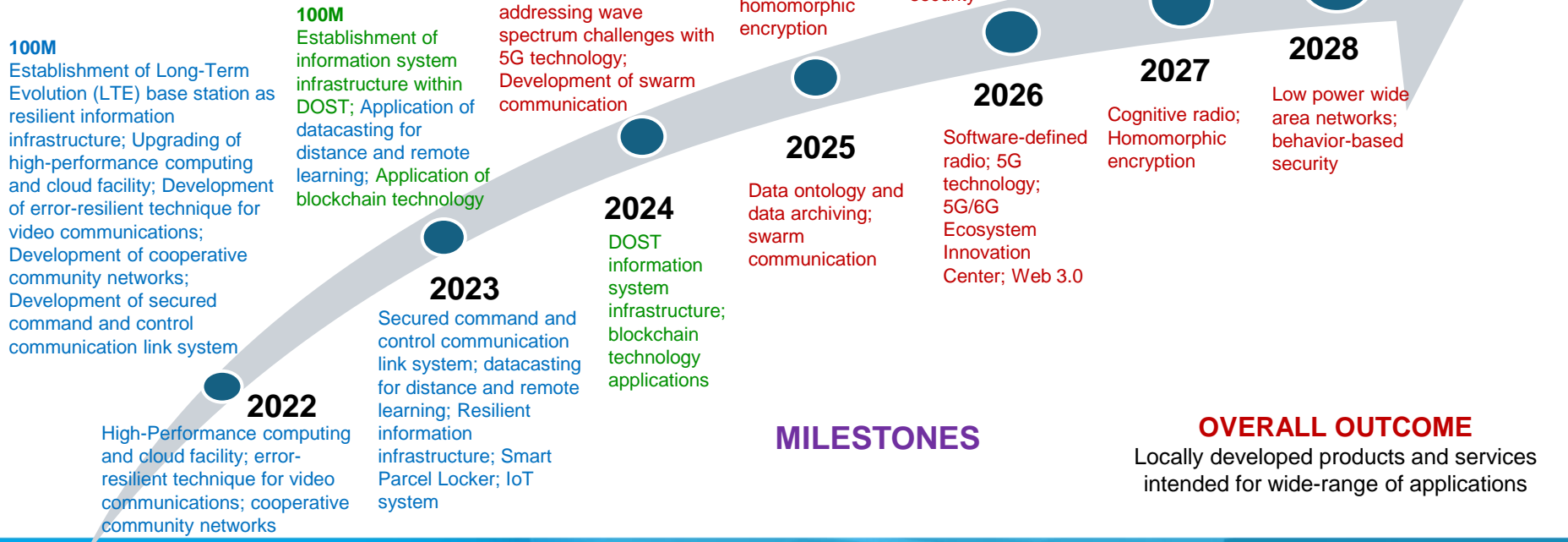
Cybersecurity:

- Application of homomorphic encryption
- Application of behavior-based security

S&T Policies

- Spectrum policy reform: allocation of unused frequencies for amateur radio / TV stations for research and development, emergency communications, and educational purposes
- Develop policies for effective last-mile connectivity for rural and remote areas
- Additional provision in RA 10173: Data Privacy to address the right to be forgotten on blockchain technologies
- Complete roll-out of the National Broadband Plan, National Cybersecurity Plan, and other connectivity initiatives

R&D SOLUTIONS



VISION

By 2040, the Philippines will fully realize the benefits of ICT shifting towards a robust and accessible digital ecosystem in which digitally transformed entities interact with each other, mutually benefit each other, and promote the greater good

MILESTONES

OVERALL OUTCOME

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

List of ICT Innovations Projects (for the whole duration of the roadmap)

R&D Technologies	Project Title	Budget Allocation ('000)							Status
		2022	2023	2024	2025	2026	2027	2028	
Information and Communications Technology	Mathematical Resources for Distance Learning Utilizing Community LTE Networks and Television Frequencies	1,163,580.00							Completed (PCIEERD-GIA)
	Development of Framework and Materials for Distance and Remote Learning via Datacasting	3,932,636.80							Completed (PCIEERD-GIA)
	Resilient Education Information Infrastructure for the New Normal	2,572,767.88							Completed (PCIEERD-GIA)
	Secured Command and Control Communication Link System								Completed (PCIEERD-GIA)
	CRADLE: Smart Parcel Locker	1,749,850.00	4,997,888.00						Completed (DOST-GIA)
	i-DRIP (IoT-Based Dispenser for Real-time Intelligent Pour) an IoT-Based Real-Time Control and Monitoring System for Smart Beverage Dispenser	4,983,801.60							Ongoing (DOST-GIA)
	Stabilization of Network Infrastructure for the Information System (DOST-IS)		27,148,928.00	12,238,928.00					Ongoing (DOST-GIA)

