

Gujarat Quantum Mission Master Planning Handbook

Linked national, state, institutional and international evidence for mission design

Evidence checked 1 October 2026

Purpose

This handbook gives Gujarat a single planning reference for mission governance, national access, capability verification, demand validation and staged implementation. It connects the detailed evidence workbook, engagement kit and executive roadmap supplied with this package.

Planning conclusion

Gujarat should begin with a state mission office, a verified asset and problem register, formal access to the four National Quantum Mission hubs, a post quantum cryptography programme and a small portfolio of independently tested pilots. The evidence does not yet support a hardware first campus or a large equipment purchase.

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1 How to use the package

File	Primary use	When to update
Master planning handbook	Common narrative, architecture and linked source directory.	After major policy, programme or mission decisions.
Evidence workbook	Record level evidence, owners, status, links, verification questions and actions.	Continuously. Every claim or stakeholder response becomes a row update.
Stakeholder engagement kit	Official letters, meeting agendas, interview forms and inspection templates.	Before each engagement. Preserve completed signed copies in the evidence room.
Executive roadmap	Discussion deck for ministers, departments, institutions and industry.	After each decision gate or approved change in direction.

The workbook is the control record. The handbook and deck should use only claims whose workbook status and source support the wording used.

2 Evidence and decision rules

Status	Meaning
Announced	Public intention without demonstrated authority, finance or delivery.
Approved	Competent authority approved the programme or policy.
Sanctioned	Administrative or financial project envelope approved.
Released	Funds transferred or made available.
Tendered	Procurement process initiated.
Awarded	Contract or letter of acceptance issued.
Installed	Asset physically placed.
Operational	People, systems and procedures can use the asset.
Demonstrated	A defined technical result has been reported.

Status	Meaning
Independently validated	A third party tested or reproduced the result.
Deployed	Used in a real operating environment.
Scaled	Repeated beyond a pilot.

- Location does not establish state ownership or access.
- A policy allocation is different from a quantum-specific sanction.
- A tender does not prove award, installation or operation.
- A technical demonstration does not prove procurement readiness.
- Every pilot needs a problem owner, strong classical baseline, acceptance test, security review, operating-cost view and stop condition.

3 India National Quantum Mission

The Union Cabinet approved the National Quantum Mission on 19 April 2023 with an outlay of ₹6,003.65 crore for FY2023-24 to FY2030-31. The mission targets computing, communication, sensing and metrology, and materials and devices. DST coordinates delivery through four Section 8 hub companies and a distributed research network.

Element	Verified position	Planning implication for Gujarat
Authority	Cabinet-approved national mission for eight years.	Align the state programme with NQM technical groups and calls rather than duplicate the national structure.
Network	14 Technical Groups, 17 selected proposals, 152 researchers and 43 institutions reported by DST.	Use Gujarat institutions as specialist nodes within a national network.
Finance	₹6,003.65 crore total outlay. Dated sanctions, releases and expenditure must remain separate.	Seek project co-funding and services. Do not treat national outlay as money available to Gujarat.
Startups	Common guidelines and rolling calls through all four hubs.	Prepare Gujarat startups for DPIIT, Indian ownership, India-resident IP and milestone review requirements.
Talent	BTech minor and MTech curriculum frameworks plus calls and hub programmes.	Scale instructors, cloud access and experiments before buying advanced teaching hardware.
Facilities	National facilities and new capacity are being developed at lead institutions.	Request present inventory, booking, tariff, security and commissioning evidence before local capital proposals.

DST National Quantum Mission: [Open official source](#) Mission targets, hubs, calls and Quantum Technology Cell contacts.

DST hub network: [Open official source](#) Lead and member institutions, including IIT Gandhinagar and ISRO Ahmedabad.

Cabinet approval: [Open official source](#) Authority, outlay and targets.

Startup guidelines: [Open official source](#) Eligibility, governance and milestone support rules.

4 Four National Quantum Mission hubs

Hub	Current public entry routes	Gujarat first action
FQCI at IISc Bengaluru	QC LEAP startup support, QC ACCEL academia industry projects, QC QUEST events, talent routes and existing nanofabrication services.	Pair Gujarat researchers with named industrial problems. Confirm live call windows, cloud or QPU access, facility tariffs and IP terms.

Hub	Current public entry routes	Gujarat first action
Samgnya at IIT Madras and C-DOT	Rolling quantum communication startup call, talent applications, workshops and technical-group collaboration.	Present GIFT and state-network cryptographic problems. Request a pre-feasibility and security architecture before any QKD proposal.
Qmet Tech at IIT Bombay	NextSense startup support, fellowships, collaboration and facility access subject to policy. IIT Gandhinagar appears in the network.	Begin through IIT Gandhinagar. Obtain the exact work package, equipment list, calibration chain and industry problem route.
QMD Foundation at IIT Delhi	Rolling NextLeap startup call, fellowships and planned fabrication and testing access.	Map Gujarat semiconductor and photonics capability. Confirm foundry commissioning, process access, sample ownership and funding terms.

No hub publishes a general post-formation process for a state government to become a consortium member. Gujarat should pursue project calls, facility-service agreements, user problem statements, fellowships and negotiated MoUs.

FQCI programmes: [Open official source](#)

Samgnya startup call: [Open official source](#)

Qmet NextSense: [Open official source](#)

QMD NextLeap: [Open official source](#)

5 Indian state comparison

State	Verified model	Transferable lesson	Critical caution
Andhra Pradesh	State-funded physical cluster with sanction, award and contractor payment evidence.	Capital execution, land and accountable project delivery.	No verified commissioned quantum system or operating model yet.
Karnataka	IISc anchor, Quantum Research Park and national ecosystem depth.	Build around a globally credible anchor and shared facilities.	National and institutional assets are not automatically state investment.
Telangana	Long-lived photonics ecosystem vehicle with training and proposed quantum activity.	Use a permanent ecosystem organisation rather than an event series.	Training and proposed proof of concepts do not establish deployed capability.
Tamil Nadu	Deep-tech policy and translation partnerships through iTNT.	Use challenge programmes and national access before large capital.	MoUs and letters of intent remain pre-delivery evidence.
Maharashtra	IIT Bombay national sensing hub and institutional concentration.	Specialise around existing national leadership.	No consolidated state quantum mission and expenditure ledger was located.
Uttar Pradesh	Broad deep-tech and centre-of-excellence mechanisms.	Allow quantum projects into general innovation instruments.	No quantum-specific portfolio or facility was evidenced.
Kerala	Budget statement for a proposed university centre.	University capacity can seed talent and research.	Sanction, DPR, amount and delivery evidence remain incomplete.
Gujarat	STI policy, outreach and procurement signals.	Combine state policy instruments with national hub access and user demand.	Mission authority, awards, operational assets and access rights require verification.

Andhra Pradesh AQCC sanction and award: [Open official source](#)

Karnataka Quantum Research Park: [Open official source](#)

Telangana Photonics Valley Corporation: [Open official source](#)

Tamil Nadu Deep Tech Policy: [Open official source](#)

6 International reference models

Jurisdiction	Operating model	Most useful lesson for Gujarat
United Kingdom	Office for Quantum, research hubs, NQCC, NPL, Innovate UK missions and public procurement.	Connect research, shared facilities, industry challenges, standards and procurement.
United States	Statutory national initiative, agency programmes, national laboratories, QED-C and independent advisory committee.	Separate delivery from independent review. Publish budgets and annual progress.
Canada	Three national missions implemented through agencies and specialised regional hubs.	Use regional specialisation and existing clusters rather than replicate every capability.
European Union	Flagship governance and cross-country projects funded through several instruments.	Coordinate distributed actors with a shared agenda and portfolio evidence.
Singapore	Concentrated National Quantum Office, shared platforms and quantum-safe trials.	A small executive office can coordinate institutions and adoption programmes.
Australia	National strategy implemented through several research, capital, trust and industry instruments.	Publish an implementation map even when funding comes from several programmes.
Japan	Rolling Cabinet strategies, research hubs and hybrid user programmes.	Refresh strategy regularly and connect users to quantum and classical systems.
South Korea	Statute, five-year plans, national committee and competitively designated regional cluster.	Use transparent selection criteria and central-local co-investment.
China	Long-horizon national infrastructure and concentrated strategic capacity.	Avoid low-level duplication. Public transparency and independent review remain essential for Gujarat.

UK National Quantum Strategy: [Open official source](#)

US National Quantum Initiative: [Open official source](#)

EU Quantum Flagship governance: [Open official source](#)

Canada National Quantum Strategy: [Open official source](#)

Australia National Quantum Strategy: [Open official source](#)

Japan Cabinet Office quantum portal: [Open official source](#)

South Korea quantum strategy: [Open official source](#)

China Fourteenth Five Year Plan: [Open official source](#)

7 Gujarat policy and capability base

Gujarat Science Technology and Innovation Policy 2026 to 2031 identifies quantum technologies as a focus area within a broader research framework and describes a ₹1,000 crore innovation fund, research clusters, shared laboratories and talent targets. Public evidence does not establish a quantum-specific allocation from that fund.

Node	Verified role	Access or evidence gap
PRL Ahmedabad	Quantum optics, photon sources, QRNG, free-space QKD and sensing prototypes.	DoS ownership, current equipment, calibration, uptime and external-user terms.
SAC ISRO Ahmedabad	Reported free-space QKD demonstrations and NQM communication-hub participation.	Strategic access, present operating status, security approval and state-use rights.
IIT Gandhinagar	NQM sensing and metrology participant with relevant faculty and courses.	Technical group, sanction, equipment and Gujarat work package.
Gati Shakti Vishwavidyalaya	NQM-sponsored optimisation research for rail and multimodal logistics.	Results, datasets, strong classical baselines and user acceptance.
Ahmedabad University and DAU	Quantum algorithms, hybrid methods, theoretical research and talent.	Reproducible software, cloud access, industry problems and IP.

Node	Verified role	Access or evidence gap
SVNIT PDEU Nirma Gujarat University	Teaching and foundational research exposure at varying levels.	Instructor capacity, experimental laboratories, usage and project outcomes.
GIL GUJCOST Science City	Procurement, programme coordination, outreach and education.	Tender awards, installed assets, acceptance, O and M and learning outcomes.
ISR Gandhinagar	Field seismology, geophysics and monitoring capability.	Candidate sensor test partner. No quantum sensor lab verified.

Gujarat STI Policy: [Open official source](#)

GIL tenders: [Open official source](#)

PRL quantum programme: [Open official source](#)

SAC QKD report: [Open official source](#)

Gati Shakti Vishwavidyalaya NQM project: [Open official source](#)

8 Demand portfolio

Priority	Problem and first deliverable	Decision gate
1 GIFT post quantum cryptography cohort	Cryptographic inventories, long-lived data classification, migration designs and controlled implementation tests.	Implementation correctness, rollback, performance, audit and procurement requirements.
2 State crypto agility	Map selected GSDC GSWAN and departmental systems. Add migration architecture and vendor clauses.	No product procurement before dependencies, ownership and standards profile are complete.
3 Assurance and interoperability environment	Vendor-neutral test environment for PQC libraries, key systems, QKD interfaces and security evaluation.	Do not claim certification without accreditation and statutory authority.
4 ISR sensing field challenge	Pre-registered blinded comparison of candidate quantum sensors with calibrated classical instruments.	Repeatability, environmental performance, reliability and lifecycle cost.
5 GSV logistics benchmark	Representative problem set, strong exact and heuristic baselines, reproducible code and user metrics.	Field pilot only after meaningful and repeatable improvement.
6 Hub-linked component and materials projects	Submit scoped work to the four hubs using Gujarat semiconductor, photonics and electronics capacity.	Local facility only after evidence of unmet demand, access constraints and five-year O and M.
7 Talent network	Faculty cohorts, cloud access, shared curriculum, internships and usage-based teaching labs.	Completed experiments, instructor competence, projects and placements.

9 Recommended Gujarat mission architecture

Layer	Responsibility
State mission council	Approves strategy, portfolio budget, risk appetite and annual results. Includes science, industry, user departments and independent members.
Mission office	Maintains the evidence room, coordinates hubs, manages calls, contracts, data access and quarterly reporting.
Independent technical council	Reviews scientific merit, baselines, safety, security and stop or scale decisions. Members disclose delivery and vendor conflicts.
Four domain networks	Computing and software, communication and cryptography, sensing and metrology, materials and devices. They connect Gujarat teams to national hubs.

Layer	Responsibility
User council	GIFT, digital government, utilities, ports, transport, water, health, space and semiconductor problem owners define demand and acceptance.
Shared services	Legal, procurement, IP, standards, cybersecurity, data governance, metrology and independent testing.

The mission office should remain small. Institutions and companies execute projects. National hubs supply specialist infrastructure, review and funding routes. User agencies own operational problems and acceptance.

10 Phased roadmap

Period	Core work	Decision output
First 90 days	Create authority and data room. Verify institutions and facilities. Obtain signed problem statements. Meet DST and all four hubs.	Approved evidence ledger, access term sheets and shortlist of three to five pilots.
Months 4 to 12	Launch PQC work, sensing challenge, logistics benchmark, talent cohort and hub-linked projects.	Independent pilot results and a verified national-access plan.
Year 2	Scale successful projects. Establish shared assurance, training and component programmes. Use procurement only where acceptance is defined.	Portfolio reallocation based on results and operating demand.
Years 3 to 5	Build local infrastructure only where sustained demand and national access constraints justify it. Expand suppliers and recurring programmes.	Audited outcomes, facility utilization and renewal or termination decisions.

11 Decision gates and measures

Gate	Required evidence	Selected measures
Authority	Government order, accountable owner, budget and signatory.	Approvals, funds sanctioned, released, contracted and expended separately.
Capability	Inspected people, equipment, calibration, uptime and access.	Active researchers, operational assets, booked hours, utilization and external users.
Demand	Signed problem owner, baseline, data decision and procurement route.	Problem statements admitted, rejected and converted to tests.
Access	Written hub and facility terms for service, cost, IP and security.	Applications, agreements, access hours, queue and total service cost.
Pilot	Pre-registration, strong comparator, independent review and stop condition.	Milestones met, reproducibility, reliability and acceptance.
Capital	Persistent unmet demand, capacity model, staff, lifecycle cost and exit plan.	Utilization, uptime, maintenance coverage, trained operators and user revenue or service demand.

12 Linked source directory

The evidence workbook contains the record-level source register and last-verified dates. The links below are the core planning sources.

DST National Quantum Mission: [Open official source](#)

DST thematic hubs and institutions: [Open official source](#)

NQM startup guidelines: [Open official source](#)

Gujarat STI Policy 2026 to 2031: [Open official source](#)

GIL tenders: [Open official source](#)

FQCI: [Open official source](#)

Samgnya: [Open official source](#)

Qmet Tech: [Open official source](#)

QMD Foundation: [Open official source](#)

Institute of Seismological Research: [Open official source](#)

IFSCA: [Open official source](#)

Gujarat SpaceTech Policy: [Open official source](#)

Gujarat Semiconductor Policy: [Open official source](#)

Evidence boundary

This handbook remains a planning reference. Public sources establish policy, programme and capability signals. Final mission design requires government files, signed institutional responses, facility inspection, user commitments and written hub access terms.