# Poland's Quantum Technology Development Policy

## Challenges and expectations


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Forum Teratec 2026 · Workshop A2 · 21 October 2026

# From consultation to a national Policy

**08.2025**

**Assumptions v1.0**

published by the Ministry of Digital Affairs

**09.2025**

**Public consultation**

21 organisations, 238 comments and proposals

**03.2026**

**Updated Assumptions**

new research pillar, specialisations, coordination

**Ongoing**

**Final Policy**

drafting of the Policy and implementation groups

**2027–2036**

**Implementation**

ten-year perspective, reviewed every year

**238**

comments and proposals from 21 organisations

**≥ €1 bn**

minimum over 10 years, from national and EU sources

**1 × / year**

review of the Policy, based on indicators and global developments

*Source: Assumptions to the Quantum Technology Development Policy, Ministry of Digital Affairs, March 2026*

# Starting point: strengths and gaps

## Strengths

1. Strong theory: mathematics, cryptography, computer science, physics, algorithms
2. Good experimental basic research in selected areas
3. Infrastructure: PIONIER-Q, the longest QKD test network in Europe; initial (small) quantum computing infrastructure
4. Participation in QuantERA, EuroQCI, EuroHPC JU, ERC; a large scientific diaspora

## Gaps

1. Low and unstable funding for science, education and deployment
2. Weak technology transfer; few pilots, demonstrators and laboratories
3. Few dedicated curricula; barriers to attracting foreign talent
4. No domestic market, little dedicated capital, no systematic ecosystem mapping

*Source: Assumptions to the Quantum Technology Development Policy, Ministry of Digital Affairs, March 2026*

# Vision: from user to co-creator

1

## Technological sovereignty

Ability to produce, deploy and protect key quantum components

2

## Integrated ecosystem

Universities, institutes, public sector and business working together

3

## Co-creator, not only user

Lasting place in the global ecosystem

4

## Research to industry

Pilots, testbeds, sandboxes and investment incentives

5

## Secure communication

QKD and post-quantum cryptography in civilian and military systems

6

## People and society

Talent, non-discriminatory access and public awareness

*Source: Assumptions to the Quantum Technology Development Policy, Ministry of Digital Affairs, March 2026; 6 of 11 goals shown*

# Focus: broad research, narrow deployment

## Commercial specialisations (existing strengths)

**K1**

### Secure communication

QKD and PQC, photon sources, randomness, space segment

**K2**

### Control and integration

QPU control hardware and software; quantum–classical integration

**K3**

### Evaluation and advisory

Testing, benchmarking and advisory services

**K4**

### Algorithms and software

Quantum and hybrid software and applications

## Strategic specialisations (sovereignty, long term)

**S1**

### Quantum computers and components

Trapped-ion, neutral-atom

**S2**

### Secure quantum communication systems

Full systems and integration, towards a quantum internet

**S3**

### Quantum metrology instruments

Reference standards, sensors and detectors

# Quantum and HPC: infrastructure and access

1

## Compute access strategy

National and cloud access; domestic quantum computers; acquisitions with an R&D and training offset; integration with HPC and cloud

2

## A Polish quantum computer hub

At least one centre with a quantum computer based largely on Polish IP

3

## PIONIER-Q and EuroQCI

Expand and open the national test network; cross-border links; PIONIER-Q-SAT

4

## Labs and pilot lines

QPU control, cryogenics, entangled photons, detectors, pilot production lines

*Source: Assumptions to the Quantum Technology Development Policy, Ministry of Digital Affairs, March 2026*

# Challenges ahead

### From plan to budget
Turn ≥ €1 bn into a stable budget line, including co-financing of EU projects

### Market and capital
State as first customer (PCP, PPI); dedicated VC fund and co-investment

### Coordination
Inter-ministerial team led by the Ministry of Digital Affairs, with academia and business

### Sovereignty vs openness
Export control, research security and investment screening without blocking legitimate cooperation

### Talent
New programmes by 2028; attract foreign experts and the diaspora; Polish Quantum Olympiad

### Speed
Others already have strategies and budgets; PQC migration must be completed by 2030

*Source: Assumptions to the Quantum Technology Development Policy, Ministry of Digital Affairs, March 2026*

# Expectations: building it together in Europe

1. **Leading roles**
   Coordinate projects; host European initiatives in Poland

2. **EU co-financing**
   A national budget and mechanism for co-financing EU projects

3. **Regional consortia**
   Within EuroHPC, the Quantum Flagship and other programmes

4. **Testbeds and standards**
   European pilot environments; Polish experts in standardisation bodies

5. **PQC by 2030**
   In line with European recommendations, NIST and ETSI

6. **EuroQCI and PIONIER-Q**
   Cross-border extension of the national quantum network

*Aligned with the Quantum Europe Strategy and the EU Quantum Act*

*Source: Assumptions to the Quantum Technology Development Policy, Ministry of Digital Affairs, March 2026*

# Thank you!

- Questions?
- Contact: Pawel.gora2@cyfra.gov.pl